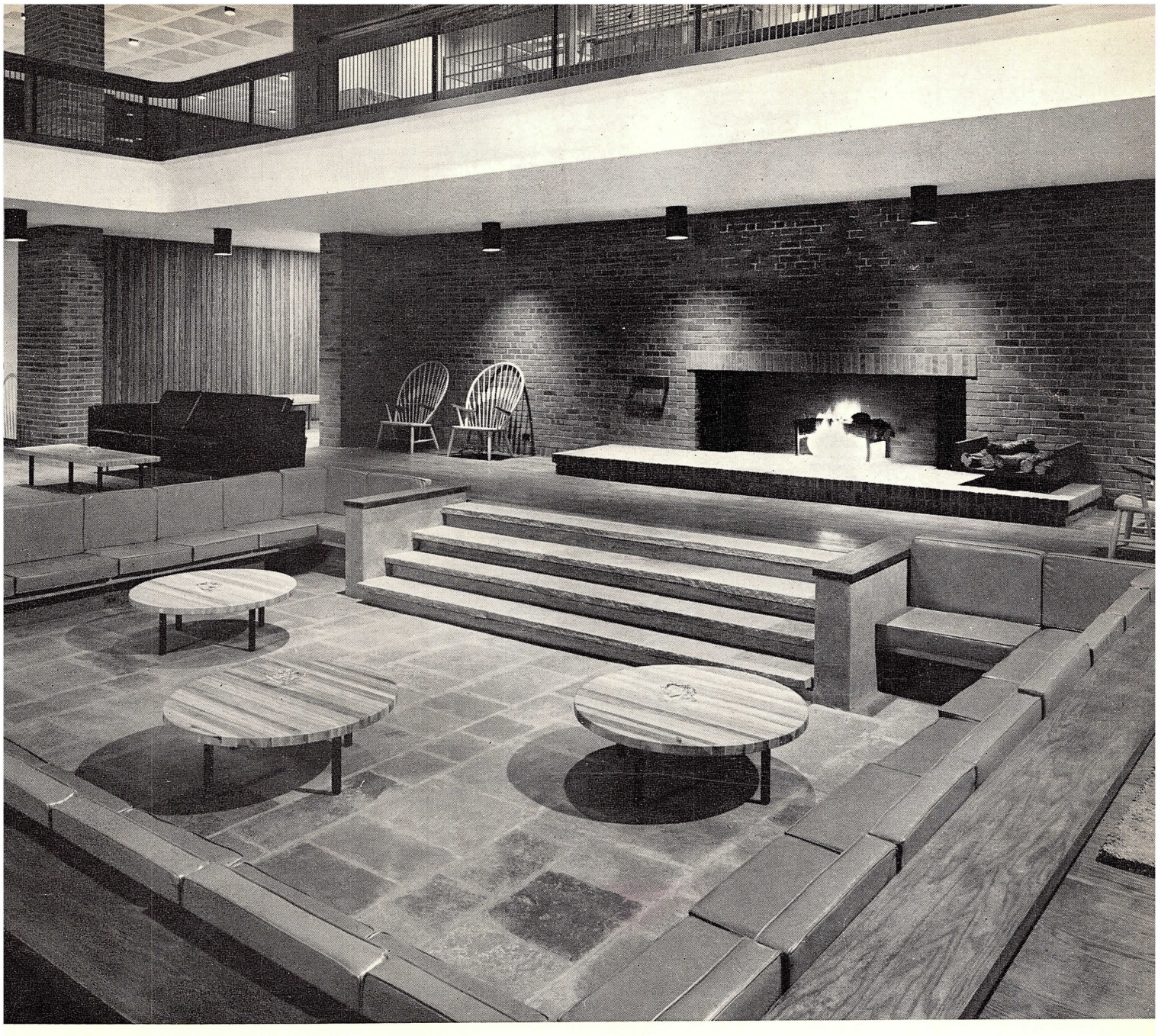


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"THE VISUAL ARTS AND THE SCIENCES: A PROPOSAL FOR COLLABORATION" BY GYORGY KEPES

PLANNING A DOWNTOWN PARKING DECK

A DORMITORY AND DINING COMMONS BY TAC

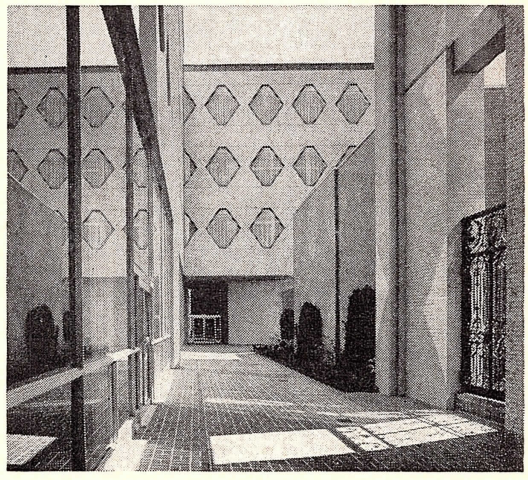
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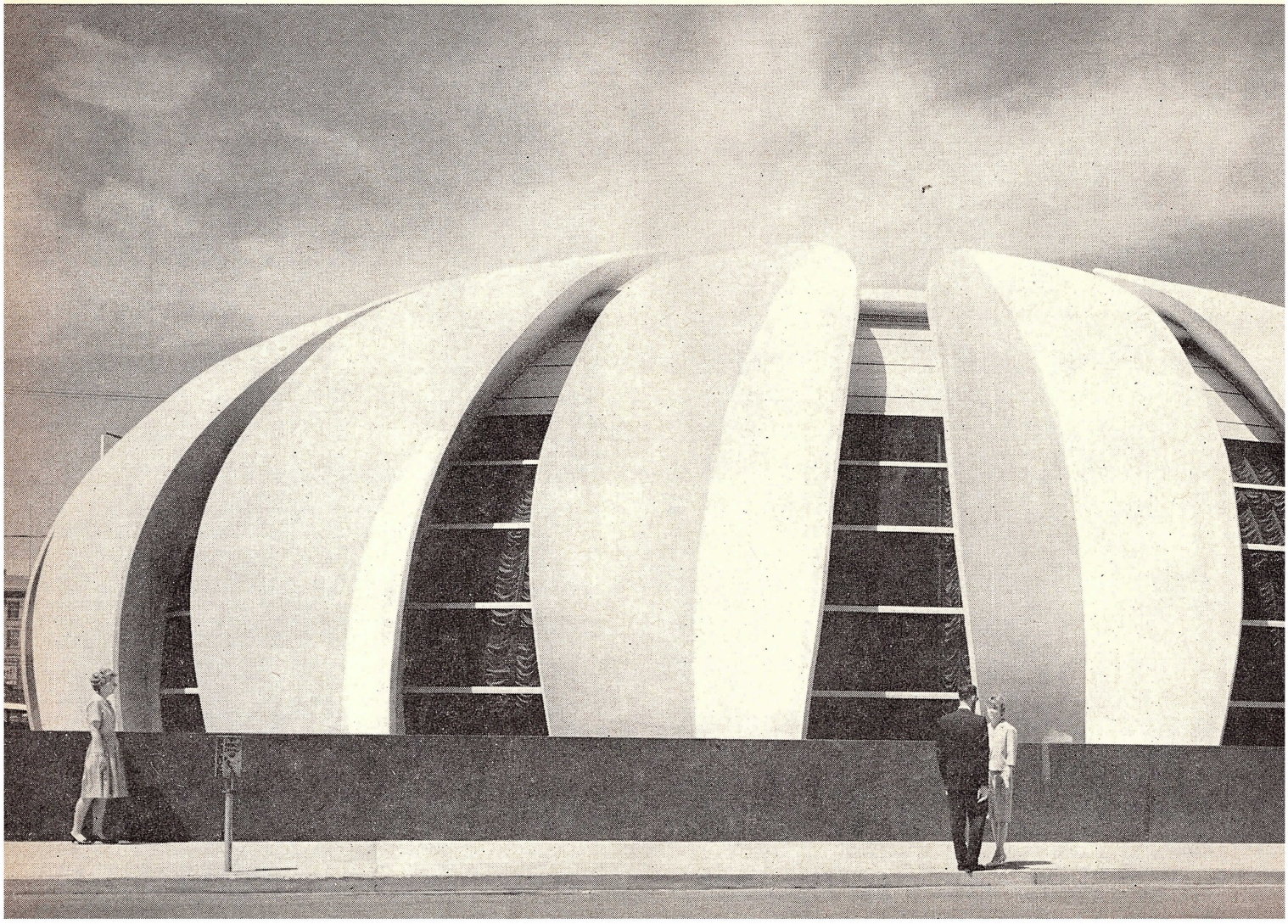
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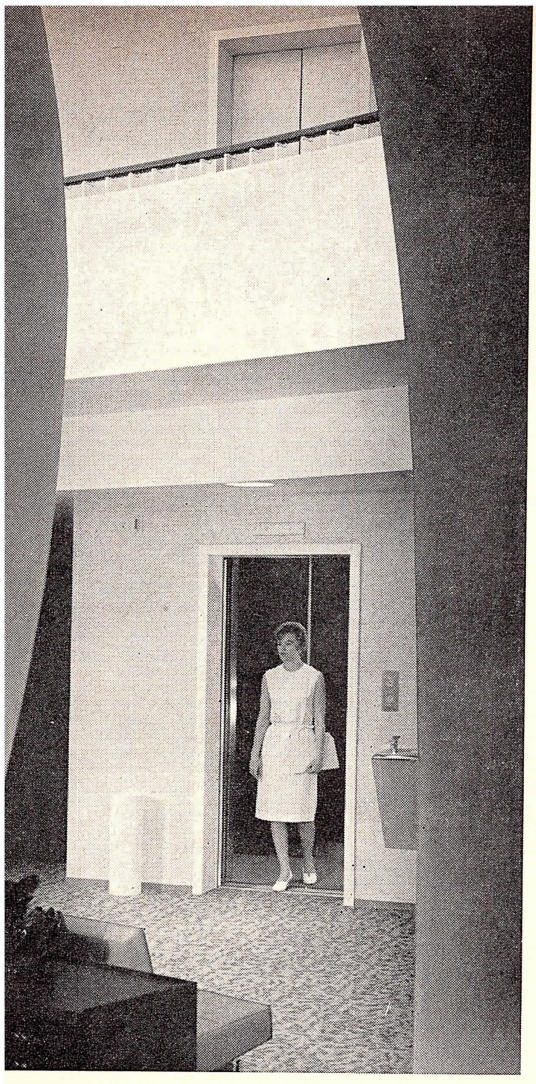
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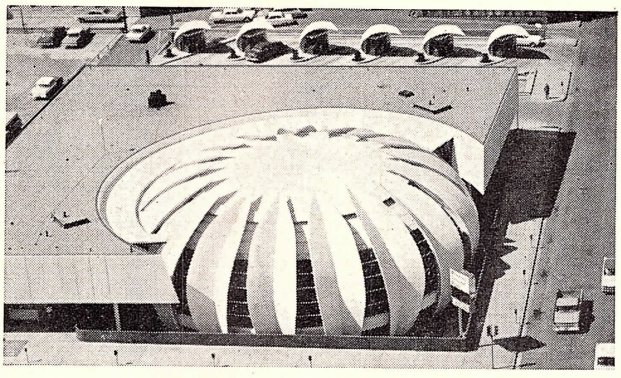
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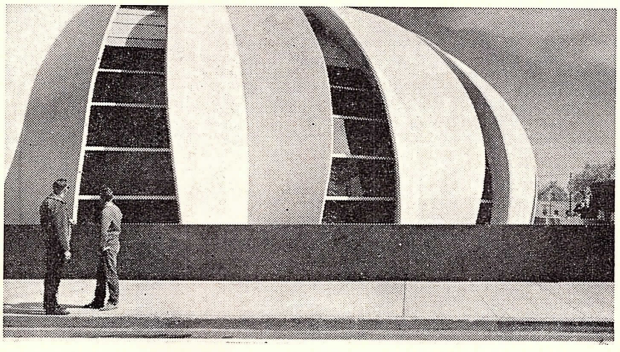
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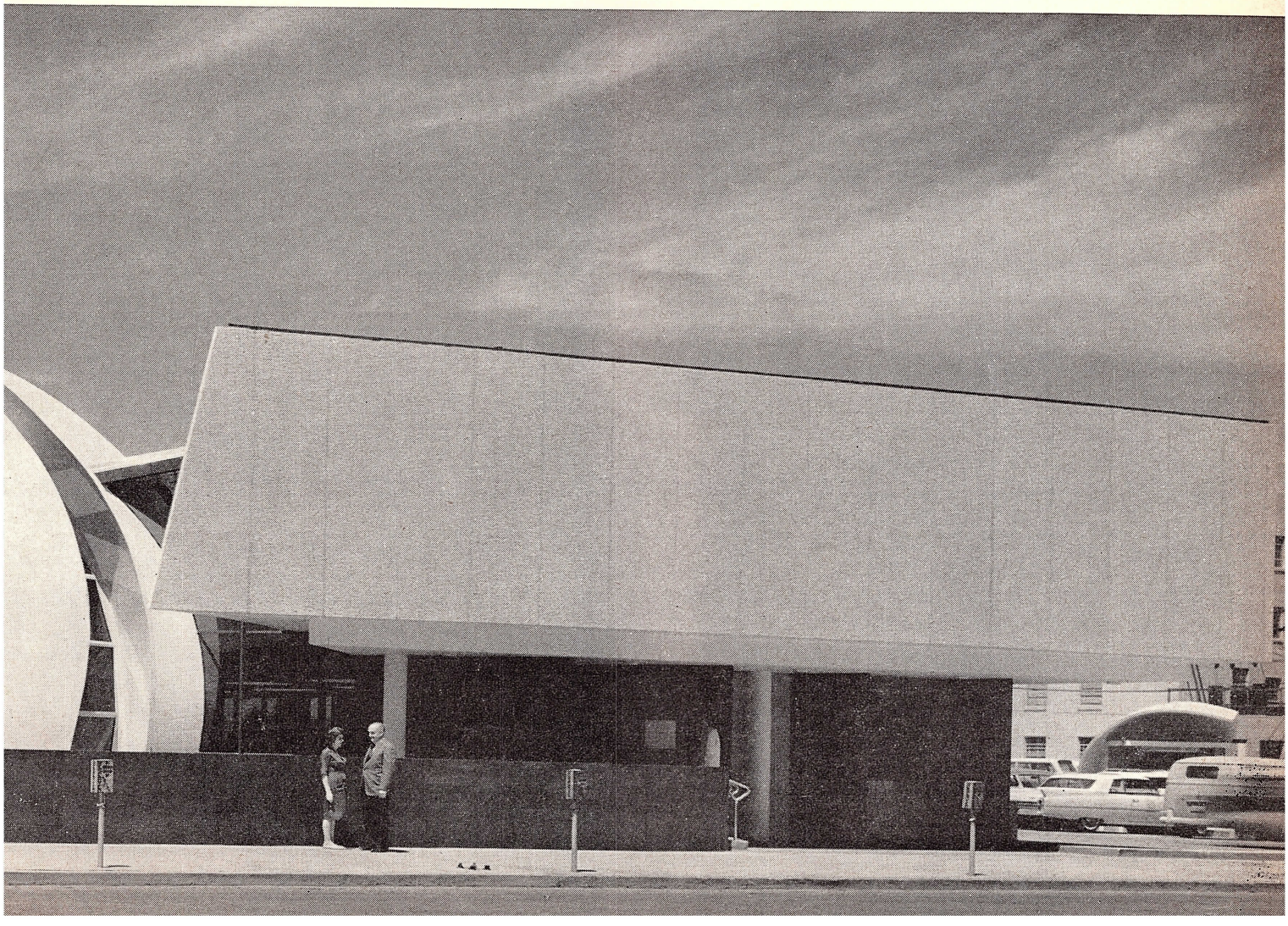


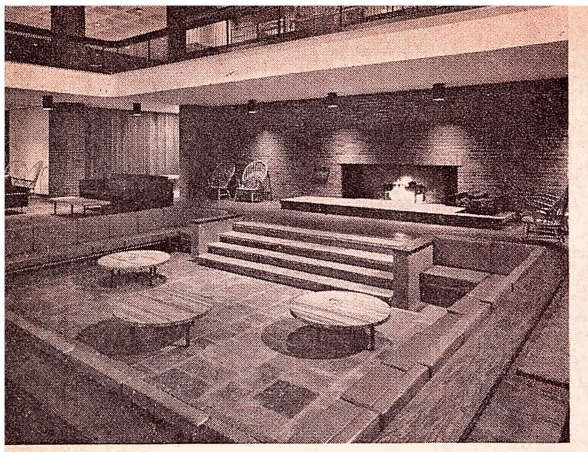




WYOMING NATIONAL BANK, Casper, Wyoming. Architect: Charles Deaton, Denver, Colo. General Contractor: B. H. Baker, Inc., Casper. Two Oildraulic Passenger Elevators installed by Dover Elevator Co., Denver.

Hedrich-Blessing Photos





Cover:

Interior of Dining Commons, Clark University, Worcester, Massachusetts. Architects: The Architects Collaborative. © Ezra Stoller Associates, Photographers

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DESIGNING FOR A CAMPUS CONCEPT

If the college building is a distinctive building type — as the American attitude seems to insist — then it is inseparable from the concept of the college as a campus. As an architectural problem it becomes a particularly difficult one, as none are more conscious than architects who have had occasion to cope with it. Next month's Building Types Study analyzes the varied approaches of several new college buildings to this problem.

AN ARCHITECT'S APPROACH TO "DOWNTOWN" PROBLEMS

Whatever the philosophical debates about methods or, indeed, validity of the very idea, there is no doubt that the revitalization of downtown areas has concerned more and more communities over the last ten years or so. Victor Gruen is an architect who has confronted this problem in a large number of communities of many kinds and sizes; and a major feature next month will report on his design solutions for several such projects.

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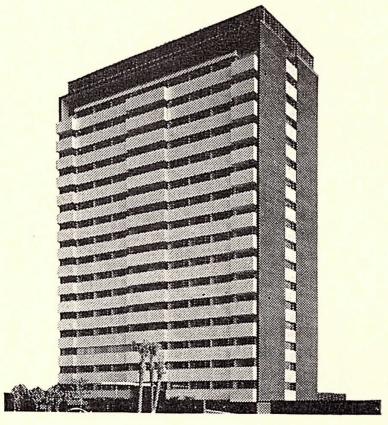
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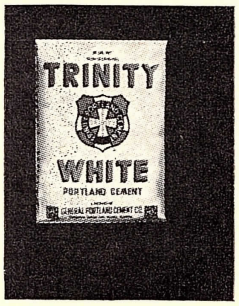


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Reaching toward a Higher Sophistication

Nobody is more sensitive than editors, I suppose, to status words like "in" or "out." We are generally supposed to thrive on momentary fashions. Editors and writers and critics are thought of as pushers or drummers, discovering some new bauble while the old is still shiny. We juggle the hemlines and bosoms at will.

I am afraid it is too generally true. In our office we have found the phrase, the "in group," very convenient, and for all its suggestion of sophistication, it carries a small note of contempt as we use it. We are, of course, continually having to judge the works of other magazines, writers, artists, architects. Perhaps the first thing we note is whether they are following some "in" line. We apply the phrase to names, to things, to designs. And if whatever it is rates the tag, it has suffered one quick negative count. It is not necessarily rejected thus summarily, but it has already lost some of the status it was seeking.

There is no claim to virtue in this lament. I am merely pointing out that the realism is inescapable. You cannot watch the currents of style or egocentric scrambling without noting motivations. Is the designer following the patter line, or is he really trying for something good, something valid, something perhaps even ageless?

The currents move so fast. Abstractionism changes to drip, to slop, to pop, to op. I suppose the next step will be simply "o," perhaps standing for "out" or "over," or maybe "offal" (no pun). We have frequently said that future historians will not say "*circa* 1965," but something like "*circa* early May, '65."

The "in" business reaches ridiculous extremes. A group of magazine art directors solemnly said, a few months ago, that photographs were "out," sketches were "in." "People are bored with photographs." That's a little like saying they are bored with eyesight. Or bored with words, or friends, or life.

Bored, yes. Bored with emptiness; bored with photos or words or friends who have nothing interesting to say. Bored with stylistic prattle.

So an editor's life is terrible hard, says Alice. Presumably a museum curator's life is also trying. I hope the Museum of Modern Art will not consider it derogatory if I say that their struggles are showing.

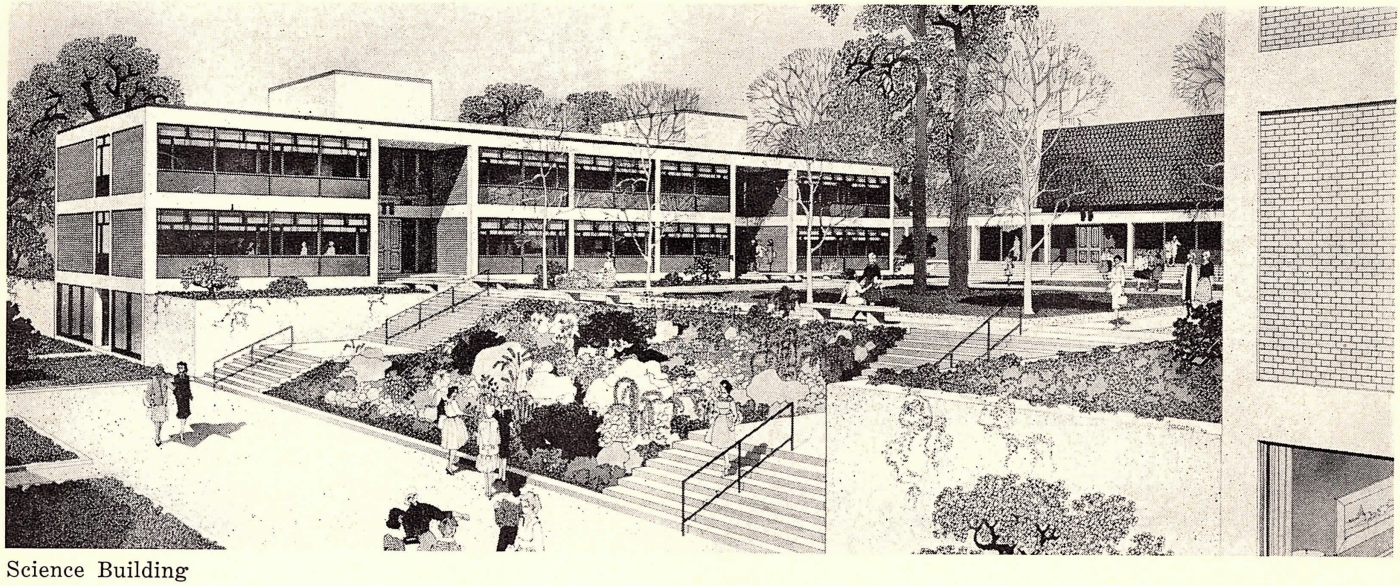
But an editor's life is rewarding, too. For the past two or three years we have been pushing our editors out into the field, to peer over drawing boards, look at buildings, study design problems, search for new talent. And we have been noting, in our own office, that there are good things to be found. There are capable, talented architects seriously trying, for example, to consider good manners as a design resource, say when adding new buildings to old campuses. There are architects working on new complexes of buildings—campuses, downtown centers, multi-family groups—and finding new building forms growing out of new groupings. Finding new forms and expressions growing out of new types of buildings (theater groups, December 1964 RECORD, for example). There are architects seriously trying to work out better in-city living arrangements.

There are new talents beginning to show, along with courage to tackle new assignments with open minds. So the boredom of the prattle of the "in groups" is at least freeing the architectural mind from some stylistic shibboleths.

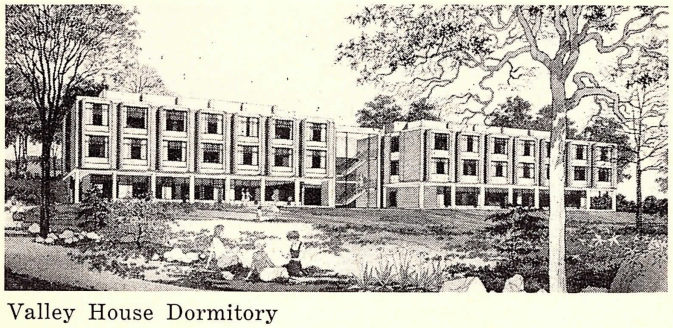
One of the more courageous efforts is reported rather spectacularly in this issue. Gyorgy Kepes, M.I.T. professor of art, proposes a joint effort by painters, sculptors, film makers, photographers, stage designers, graphic designers, and, of all things, lighting engineers. This group to work together, yes, work together, to try to improve the visual environment of our cities. Can you imagine artists of different types collaborating, communicating!, in an effort to make their art contribute to the beauty or livability of a city environment? Surely there is some turning of the tide. And there is some really terrific abstract and op art with his article. With a purpose.

Surely such a project reaches toward a new level of sophistication.

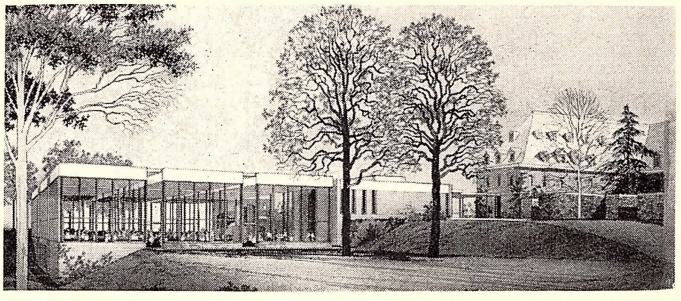
—Emerson Goble



Science Building

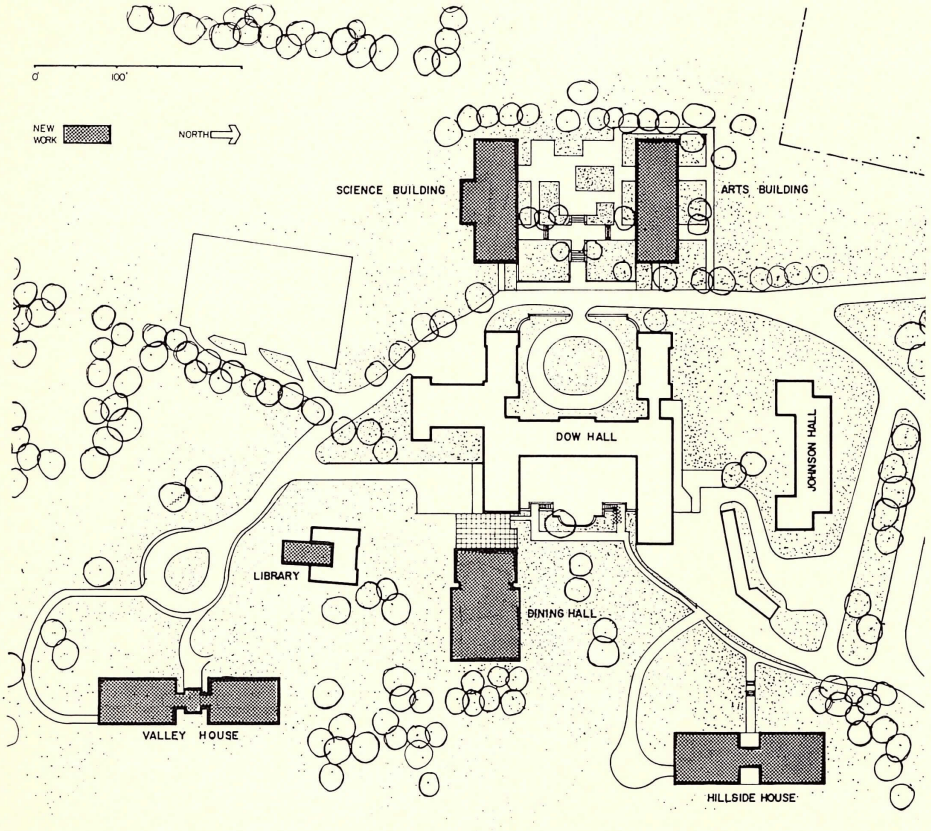


Valley House Dormitory



Dining Hall

NEW BUILDINGS RESHAPE BRIARCLIFF CAMPUS



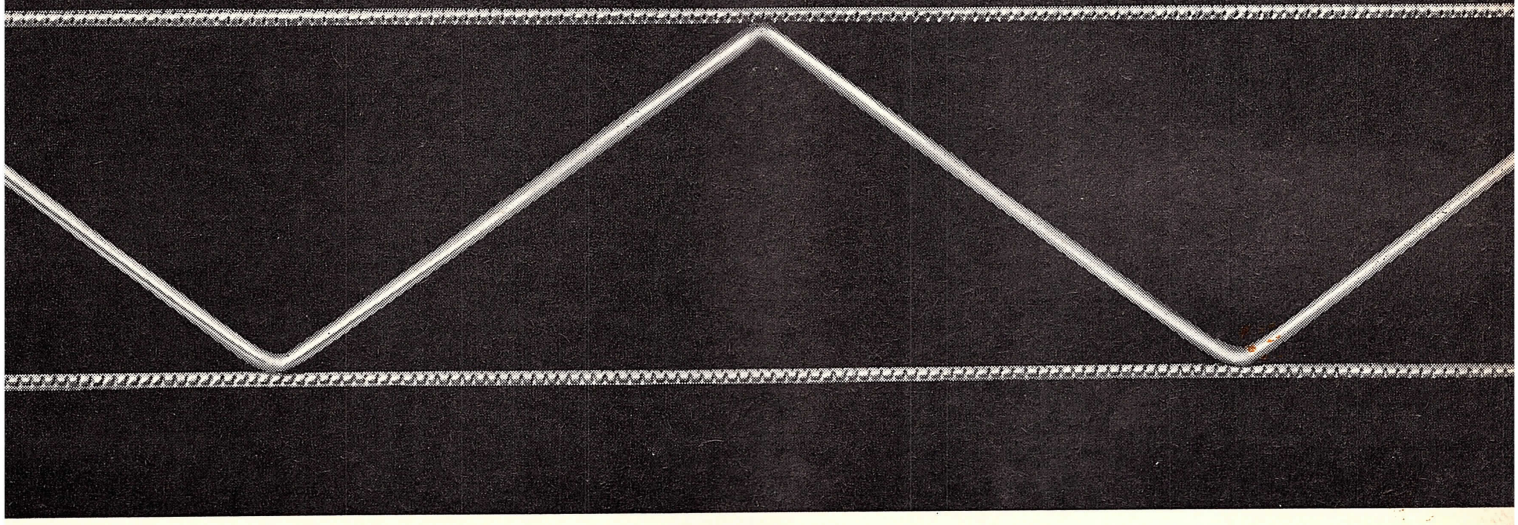
Six buildings, costing a total of $3,057,000, are rising on the campus of Briarcliff College, Briarcliff Manor, New York. Architects for the master plan and buildings are Sherwood, Mills and Smith. In addition to the buildings shown on this page are a library addition, an arts building, and a completed dormitory, Hillside House. Consultants on the project are Wayman Wing, structural engineering; Abrams and Moses, mechanical and electrical; and H. R. Butler Associates (George Cushine), landscape. General contractor is Peter Camilli.

The dormitories are reinforced concrete flat slab buildings with exterior brick facing. The science and arts buildings are steel frame and bar joist construction with removable panel acoustical ceiling below bar joists. The dining hall is essentially a three-sided glass box two stories high, lined on the interior and exterior with brick. The library addition is a two-story stack space added to and similar on the exterior to an existing painted stucco structure.

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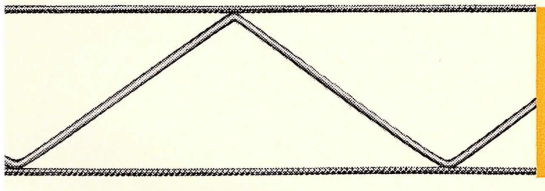
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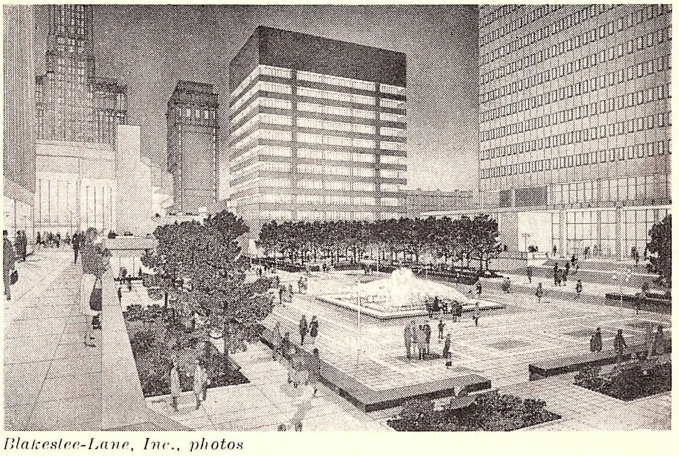
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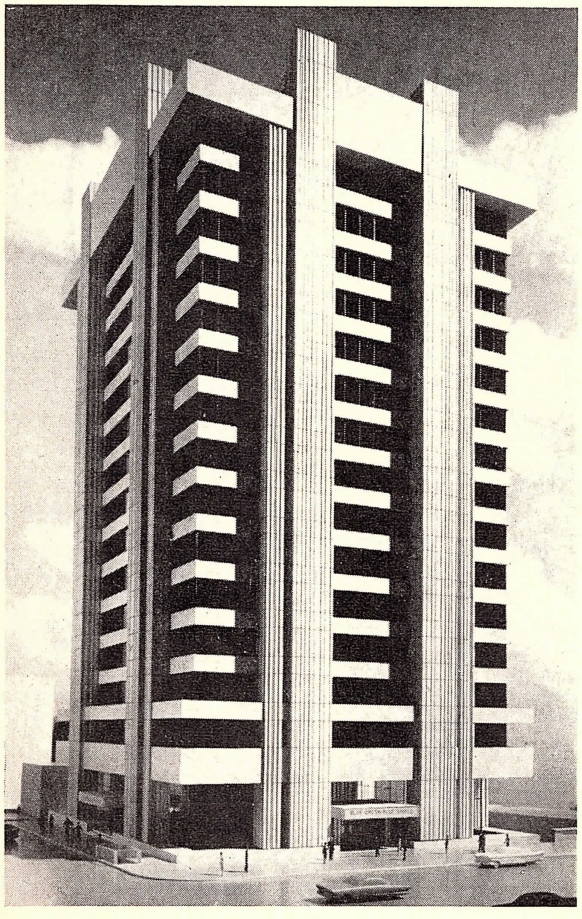




Blakeslee-Lane, Inc., photos

12-Story Office In Baltimore

A 12-story structure to house the Sun Life Insurance Company of America, in Charles Center in Baltimore, will have an exterior of black Canadian granite and floor-to-ceiling glass recessed five and one half feet from the edge for sun protection. The $6 million building was designed by Warren A. Peterson—Emery Roth & Sons, associated architects. The structural engineer was James Ruderman and mechanical and electrical engineering was done by Joseph R. Loring & Associates. The general contractor is the Cogswell Construction Company

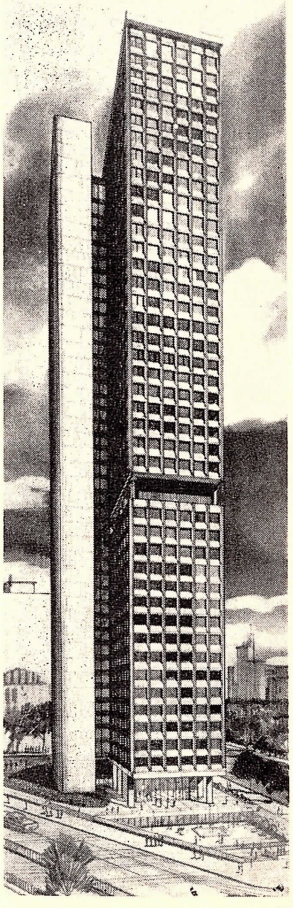


Blue Cross in Chicago

The Blue Cross-Blue Shield building in Chicago (left) will have poured concrete construction with variations in the exposed texture of the horizontal and vertical elements and bronze-colored aluminum window frames with solar bronze plate glass. The 15-story structure will contain 183,800 square feet of usable area and will cost $7 million. Architects are C. F. Murphy Associates of Chicago

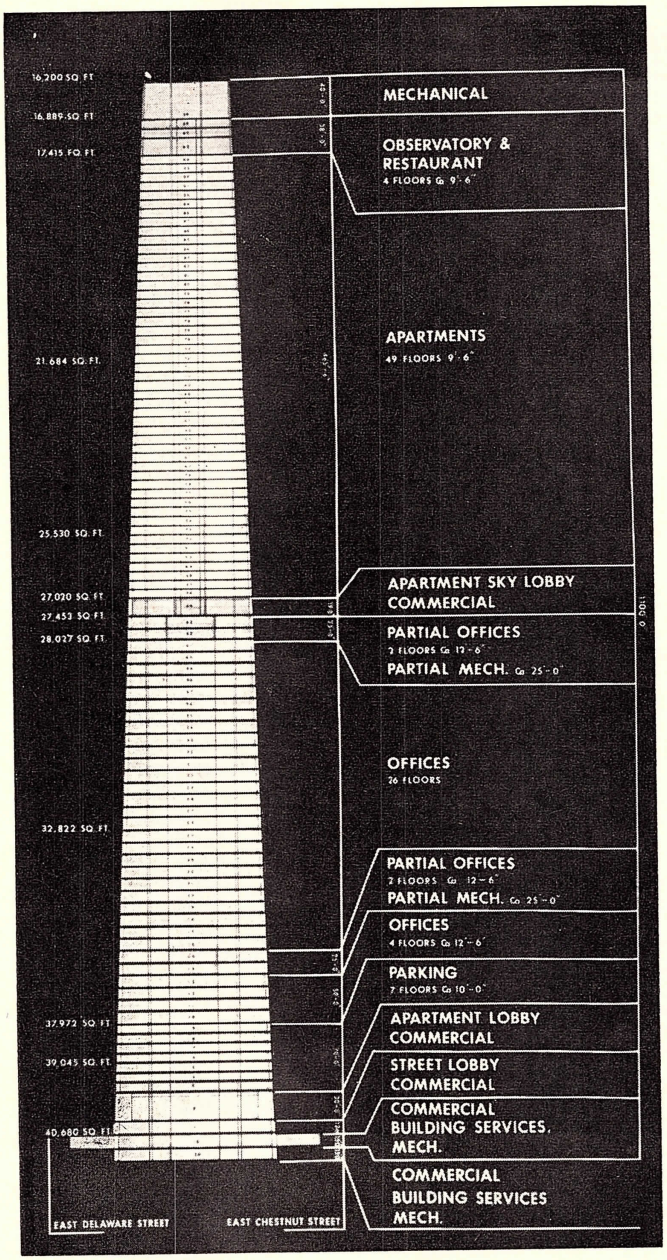
Tower In New York

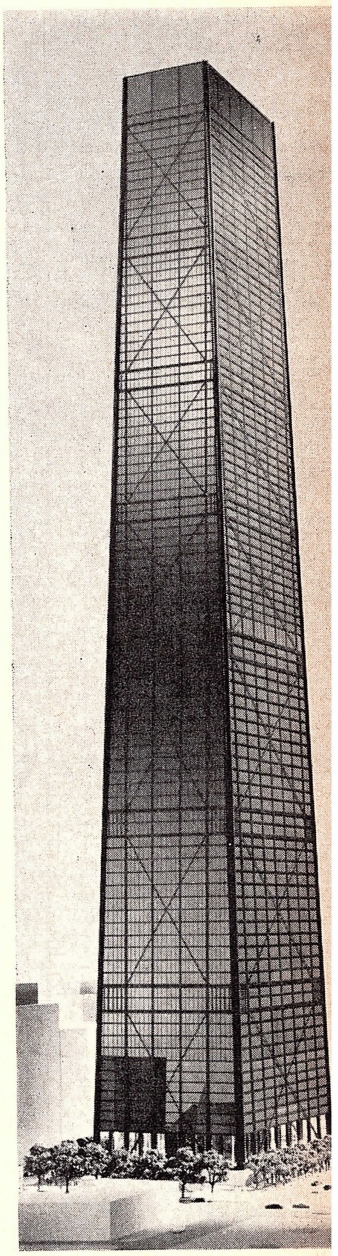
A $20 million bronze-toned aluminum and glass tower to be built by Hyman R. and Irving J. Shapiro of Forteyn Management Corporation on Columbus Circle in New York City (right) will have the building core in a narrow shaft on the west side of the structure, which will be sheathed in white marble. The 45-story office building will contain 500,000 square feet of office space and will rise from a plaza raised four feet above the street elevation. Architects are Harold M. Liebman & Associates

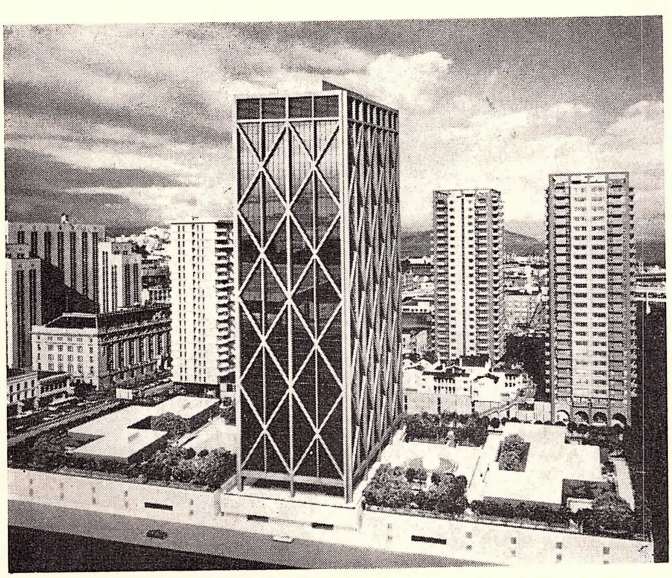


100-Story Multi-use Structure in Chicago

The 1100-foot-high, 100-story John Hancock Center in Chicago will provide 750 high-rise apartments on 49 floors, 34 floors of office space, seven floors of parking area for 1100 cars and commercial and recreational facilities. Architects for the $95 million project are the Chicago office of Skidmore, Owings & Merrill, Bruce Graham, partner-in-charge. The architects chose to create a multi-use structure after a feasibility study showed that two 700-foot buildings would have been needed to provide the same program requirements as the single taller building. The tower tapers on all four sides three inches at each story, from 41,000 square feet at the base to 16,200 square feet at the summit. This tapering allows for larger areas for the office floors, which are located on floors 10 to 43, and smaller areas for the apartments, which occupy floors 46 through 94. A two-story sky lobby on the 44th and 45th floors will provide commercial space for service and specialty shops, and recreational facilities for the apartment dwellers. According to the architects, the use of a computer helped them to approach the finished design solution in the same time as would be needed normally for a 20-story structure. Structurally, each sloping exterior wall is designed to act as a bridge-like truss, turned vertically, with seven X-braced panels. All of the wind stresses are taken at the exterior wall, which is structural, with the diagonals carrying live as well as dead loads. The exterior steel frame will be welded while connections in the interior floor system will be bolted



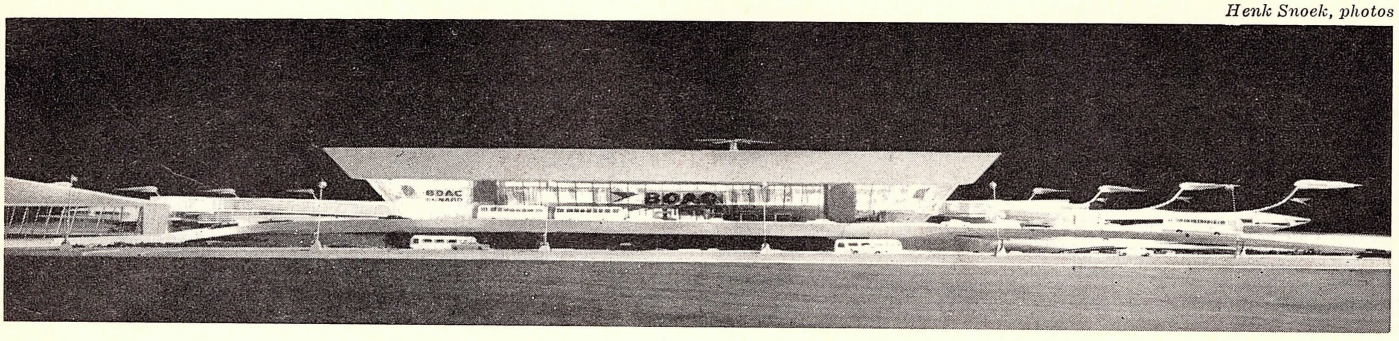


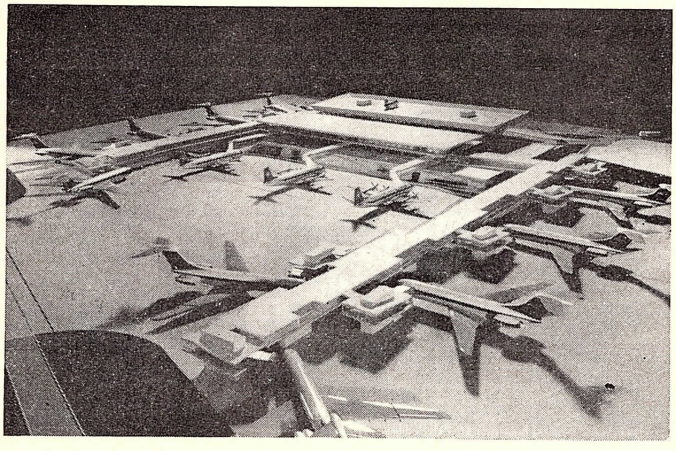


Alcoa Building In San Francisco

The 25-story Alcoa Building in San Francisco, which will rise above a 1,500-car public parking garage located below plaza level, will feature aluminum-sheathed structural steel bracing as an integral part of the building design. Behind the structural frame will be an aluminum and glass curtain wall assembly. The garage will be of reinforced concrete construction designed to support the plaza buildings, the deep planters and the park areas on its roof. The garage is faced with large textured precast concrete panels similar to the panels which will face the base of the Alcoa Building. Architect for the Alcoa building is the San Francisco office of Skidmore, Owings & Merrill. Architects for the Golden Gateway Center development in which the building is located and for the garage are Wurster, Bernardi & Emmons and DeMars and Reay. Landscape architects are Sasaki, Walker, Lackey & Associates. The general contractor is the Perini Corporation

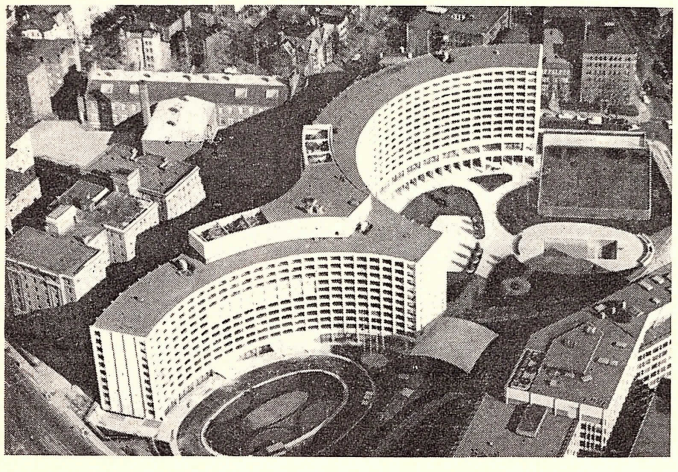
Henk Snoek, photos





Air Terminal Is Planned

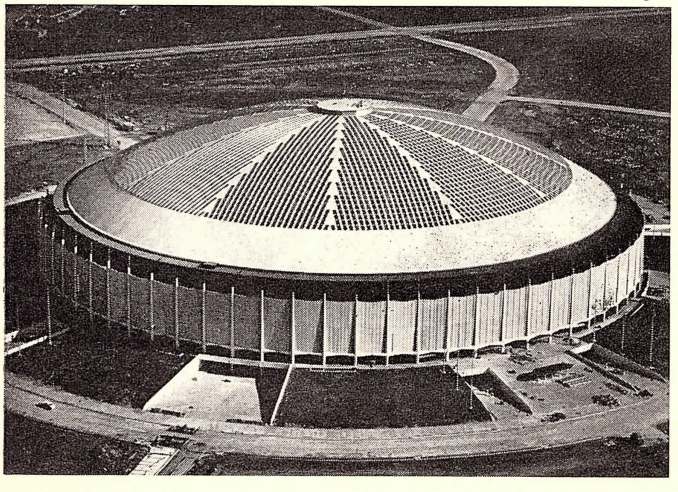
The projected $19.6 million British Overseas Airways Corporation terminal at Kennedy International Airport in New York will enable incoming or departing passengers to come to or from their planes a maximum distance of 700 feet in covered "fingers" extending from the terminal itself. The structure is designed by the English architectural firm of Gollins, Melvin, Ward & Partners, chartered architects. Consulting engineers are Ammann and Whitney of New York. The building will have three main levels: the ground floor, for incoming passengers, and including Health, Immigration and Customs facilities; the second or main floor for departing passengers; and the third floor for administrative offices, restaurant and cocktail lounge. A heliport is planned for the roof



Hotel Opens In Washington

The new Washington Hilton Hotel in Washington, D.C., designed by Architect William Tabler, takes advantage of its sharply sloping site by putting three floors (ballroom, dining room and exhibits) below lobby level, but still giving them outside exposure. Below ground is a two-level parking area for 600 cars. The 1200 guest rooms are housed in two curvilinear wings which rise ten stories, but remain within the 90-foot limitations imposed in Washington so that no building competes visually with the Capitol. The curvilinear design enables each of the guest rooms to have an outside view. Wayman C. Wing is structural engineer; Cosentini Associates are mechanical engineers; and the landscape architect is Boris Timchenko. General contractor is the Uris Building Corporation

Art Meyer

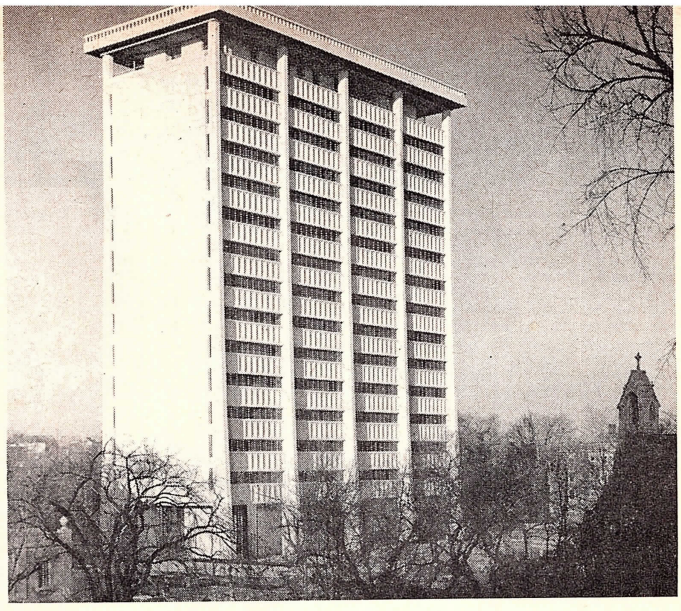


Houston Stadium Opens

The $31.6 million Houston Astrodome, officially called the Harris County Domed Stadium, which opened April 9, is the world's largest air-conditioned "room," and the first covered stadium which can accommodate baseball as well as football events. Architects associated for the project are the firms of Lloyd & Morgan and Wilson, Morris, Crain & Anderson. An unexpected problem arose when, during daylight hours, baseball players were unable to follow the path of the ball due to the glare caused by the contrast between the plastic skylights and the opaque roof panels. Several types of acrylic coating are now being tested to see which one most effectively reduces the amount of light transmission while allowing enough light to grow grass. The stadium accommodates 45,000 spectators for baseball and 52,000 for football. General contractors are H. A. Lott and Johnson, Drake & Piper

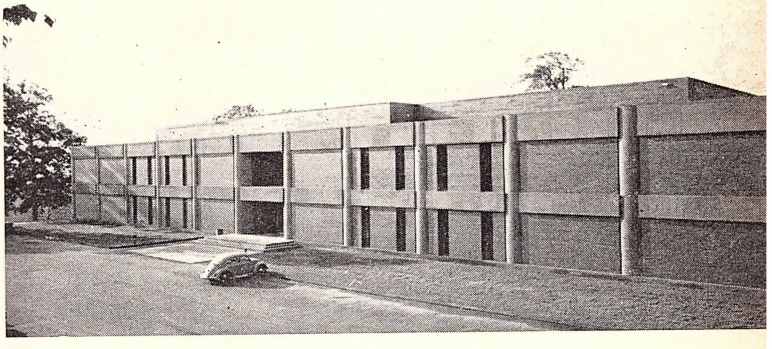
Yama at Harvard

William James Hall, center for the behavioral sciences at Harvard University, has five massive tapering piers of precast concrete on the front and back and end walls faced with precast panels. The building has a gleaming white finish, since the white cement and quartz aggregrate chips on the facade were exposed by acid etching. The $5.5 million, 15-story structure was designed by Minoru Yamasaki & Associates. Structural engineers were Worthington, Skilling, Helle & Jackson. General contractor was the George A. Fuller Company

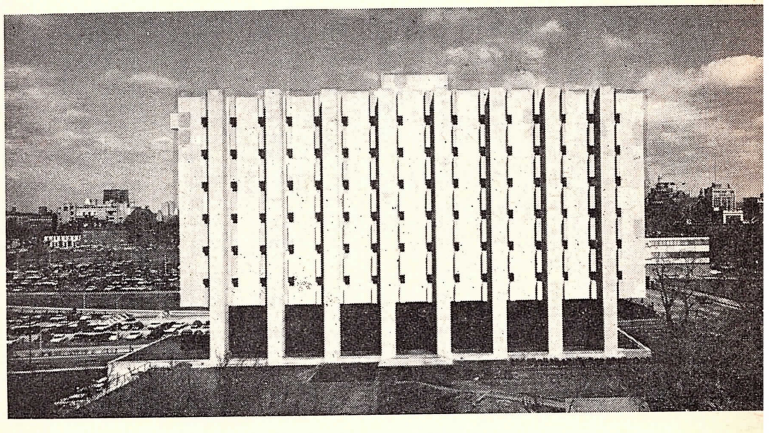


Laboratories at Yale

The $2.6 million Kline Chemistry Laboratory is the second building to be completed in Yale University's Kline Science Center, the whole project being designed by Philip Johnson, architect. The first building, the Kline Geology Laboratory, was opened in September 1963. The chemistry laboratory is a U-shaped brick-and-sandstone-faced structure with three levels. Structural engineer was Henry Pfisterer and mechanical engineers were Jaros, Baum & Bolles. General contractor was the W. J. Megin Company



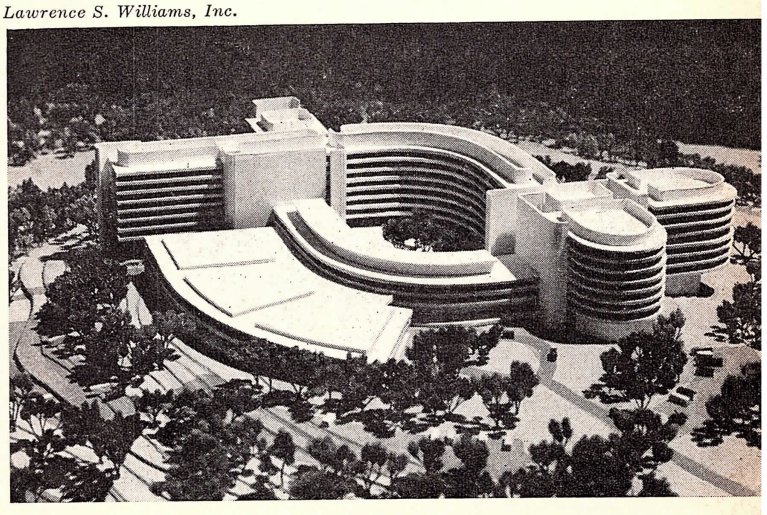
The Laboratory of Epidemiology and Public Health, at Yale University, designed by Douglas Orr and Philip Johnson, architects, rises nine stories from a podium situated partially below grade. Above a two-story glass-enclosed office unit is a six-story limestone-faced box which houses laboratory and other facilities and then a mechanical floor. Structural engineer for the $4,200,000 structure is Henry Pfisterer. Mechanical engineers were van Zelm, Haywood & Shaford. General contractor was the E & F Construction Company



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$47.3 Million "Health Center"

Five interlocking but independent buildings around an eliptical courtyard comprise Vincent Kling's design solution for the main building complex of the University of Connecticut's $47.3 million Health Center at Farmington, Connecticut. The five functional but separate elements in the complex will house medical-dental education, research, inpatient care, outpatient department and hospital services. The first phase of construction, totaling 17.5 million, includes facilities for classroom and laboratory teaching, faculty research and administration, library, heat and power generation and transmission, and communication and traffic flow systems. It is scheduled for completion in September, 1968

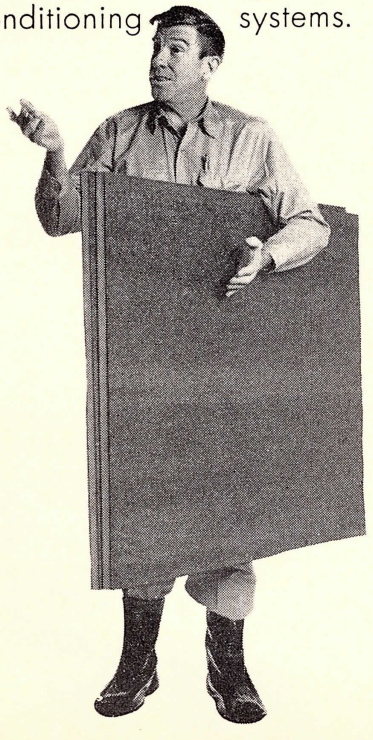


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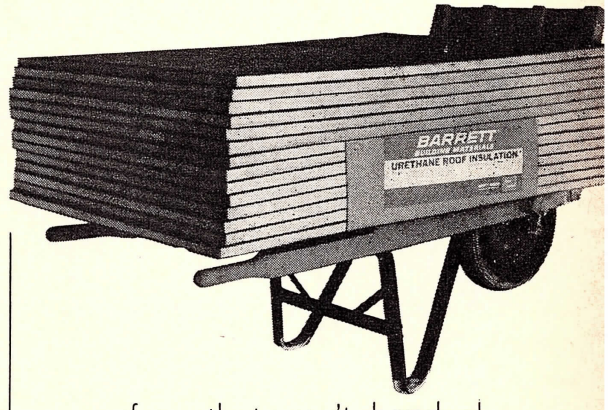
Compare Barrett Urethane to any other roof insulation. You'll find others have to be at least twice as thick to equal Barrett Urethane in insulation efficiency. Trim, thin Urethane has a C factor of 0.15. That makes it ideal insulation for buildings with modern heating and air conditioning systems.



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Urethane	**1.0"**
Glass fiber	**1.8"**
Polystyrene	**2.0"**
Fiberboard	**2.4"**
Cellular glass	**2.7"**

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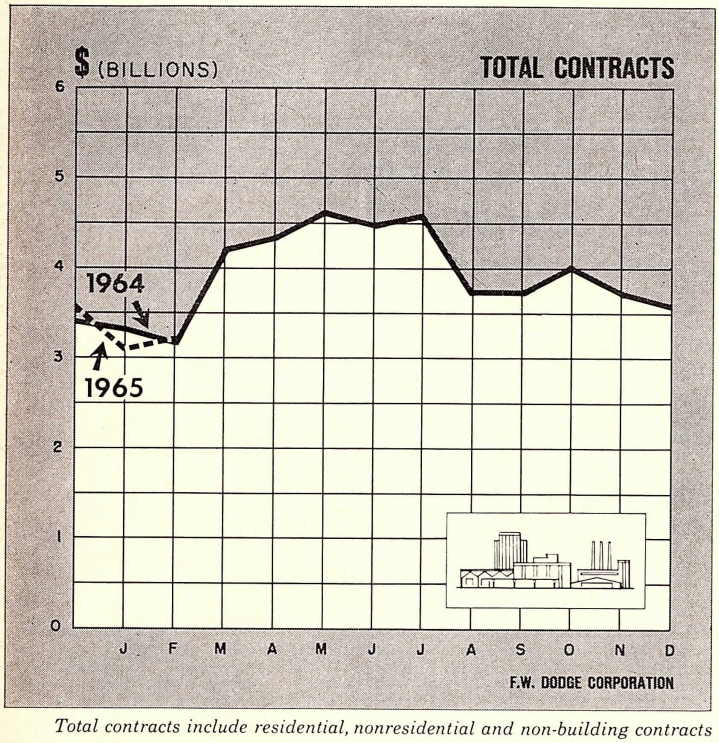


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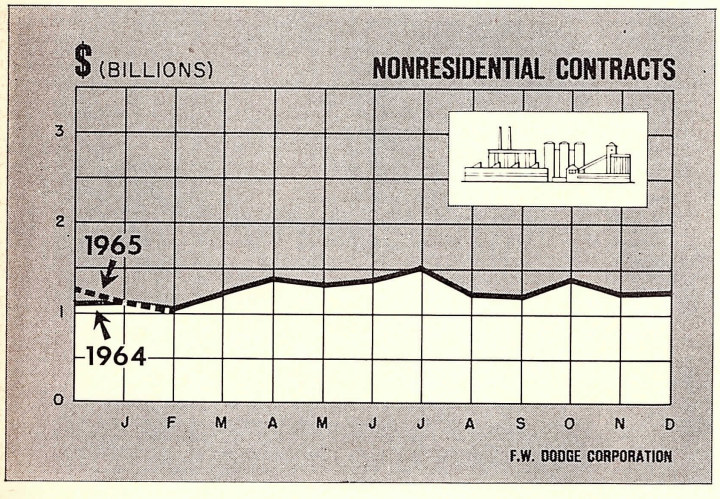
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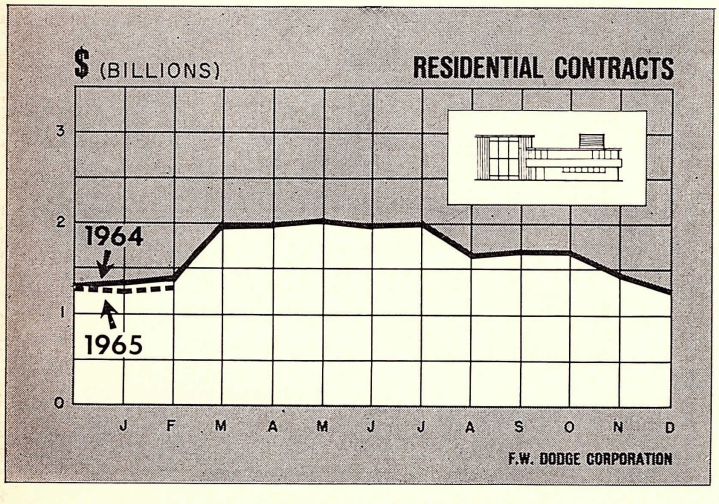
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Total contracts include residential, nonresidential and non-building contracts





NO INCREASE SEEN IN LONG-TERM INTEREST RATES

Of all the ingredients needed to keep a wave of building activity going full steam, an ample flow of *credit* is by no means the least important. And the current wave of construction expansion, which covers almost as much of the Sixties as we've seen so far, has been supported by an abundant supply of mortgage money and other funds.

Individuals, who have been saving more out of their rising incomes, are feeding the commercial banks, savings and loan associations, insurance companies and other lending institutions a steady stream of new funds to invest. In addition, corporate "saving" has been boosted considerably in recent years by record profit levels and liberalized depreciation allowances. These internally generated funds play an important part in financing industrial, commercial and utility construction.

But the growth of the money supply, and the price at which it is made available to borrowers, is at least as much a matter of what the Federal Reserve Board is thinking, as it is a matter of what savers and borrowers are doing. In recent years, the Fed has been pursuing a moderately expansionary policy (or, in its own officialese, a policy of "cautious ease") letting the supply of long-term credit grow in relation to the needs of an expanding economy. The required funds have been forthcoming, and long-term interest rates have remained highly stable.

Just lately, however, events have taken place which could be interpreted as a trend toward a more restrictive credit policy. Late in 1964, the monetary authorities raised the Federal Reserve discount rate—the rate at which the member banks borrow from their Reserve banks in order to cover variations in short-term operations. And even more recently, Reserve Board Chairman Martin observed that, in his opinion, the economy was getting very close to the "overheated" point, and that he'd like to start applying the credit brakes a bit.

In spite of this recent flurry of activity, there's little reason to expect that construction volume will be curtailed by scarce or too-costly mortgage money in the latter part of 1965. Last November's hike in the discount rate was intended solely to prevent or to lessen an outflow of short-term funds in response to the rise in the British bank rate earlier that same day. Its effect on the long-term rate is expected to be minimal. There's been no spill-over yet, and in fact, short-term rates have been edging upward for several years (since late 1961) without disturbing the stability of their longer-term cousins.

Meanwhile, the market itself has been doing a pretty good job of keeping the lid on mortgage rates. Housing starts, which were below 1.5 million (annual rate) this past quarter, left something of a gap in the total demand for long-term funds. The year-long slide in homebuilding now appears to have bottomed-out, though, and before 1965 is over, residential needs will begin competing with industrial and other construction demands for mortgage money. Then, but not until then, can we expect to see some firming in these rates.

George A. Christie, Chief Economist
F. W. Dodge Company
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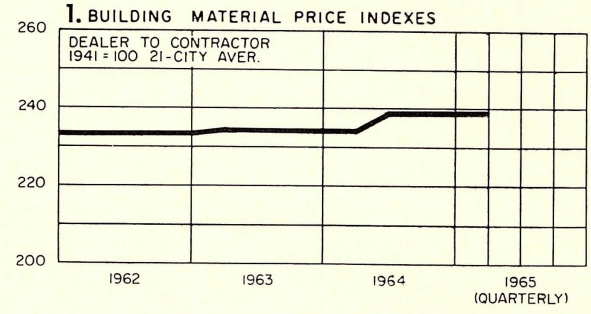
Armstrong

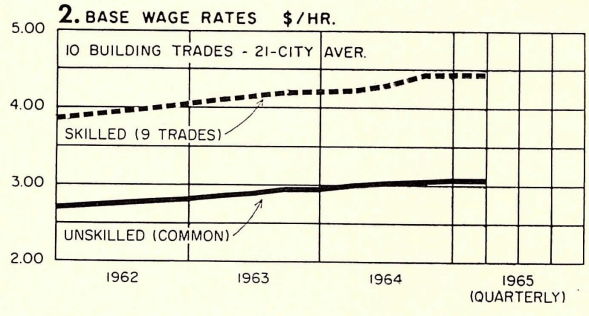
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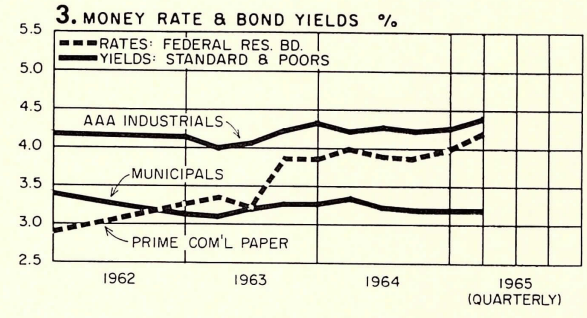
Building Construction Costs

By William H. Edgerton
Manager-Editor, Dow Building Cost Calculator, an F. W. Dodge service

The information presented here permits quick approximations of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). The tables and charts can be used independently, or in combination as a system of complementary cost indicators. Information is included on past and present costs, and future cost can be projected by analysis of cost trends.







A. CURRENT BUILDING COST INDEXES—MARCH 1965
1941 Averages for each city = 100.0

Metropolitan Area	Cost Differential	Current Dow Index Residential	Nonresidential	Per Cent Change Year Ago Res. & Nonres.
U.S. AVERAGE— 21 Cities	8.5	267.4	284.8	+1.39
Atlanta	7.2	302.9	321.3	+2.32
Baltimore	7.9	268.6	285.7	+0.78
Birmingham	7.5	248.6	267.3	+1.77
Boston	8.5	241.4	255.5	+2.10
Chicago	8.9	296.2	311.5	+0.85
Cincinnati	8.8	257.4	273.6	+1.12
Cleveland	9.2	270.0	287.0	+1.43
Dallas	7.7	251.6	259.9	+0.58
Denver	8.3	274.1	291.3	+0.80
Detroit	8.9	268.7	282.0	+1.27
Kansas City	8.3	240.9	255.0	+0.39
Los Angeles	8.3	270.3	295.7	+1.22
Miami	8.4	265.3	278.5	+0.99
Minneapolis	8.8	269.9	286.9	+1.86
New Orleans	7.8	241.8	256.2	+0.67
New York	10.0	279.3	300.4	+2.80
Philadelphia	8.7	266.0	279.2	+0.61
Pittsburgh	9.1	251.7	267.6	+1.30
St. Louis	9.1	263.6	279.3	+3.22
San Francisco	8.5	342.8	375.0	+2.34
Seattle	8.4	244.0	272.7	+0.75

B. HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES

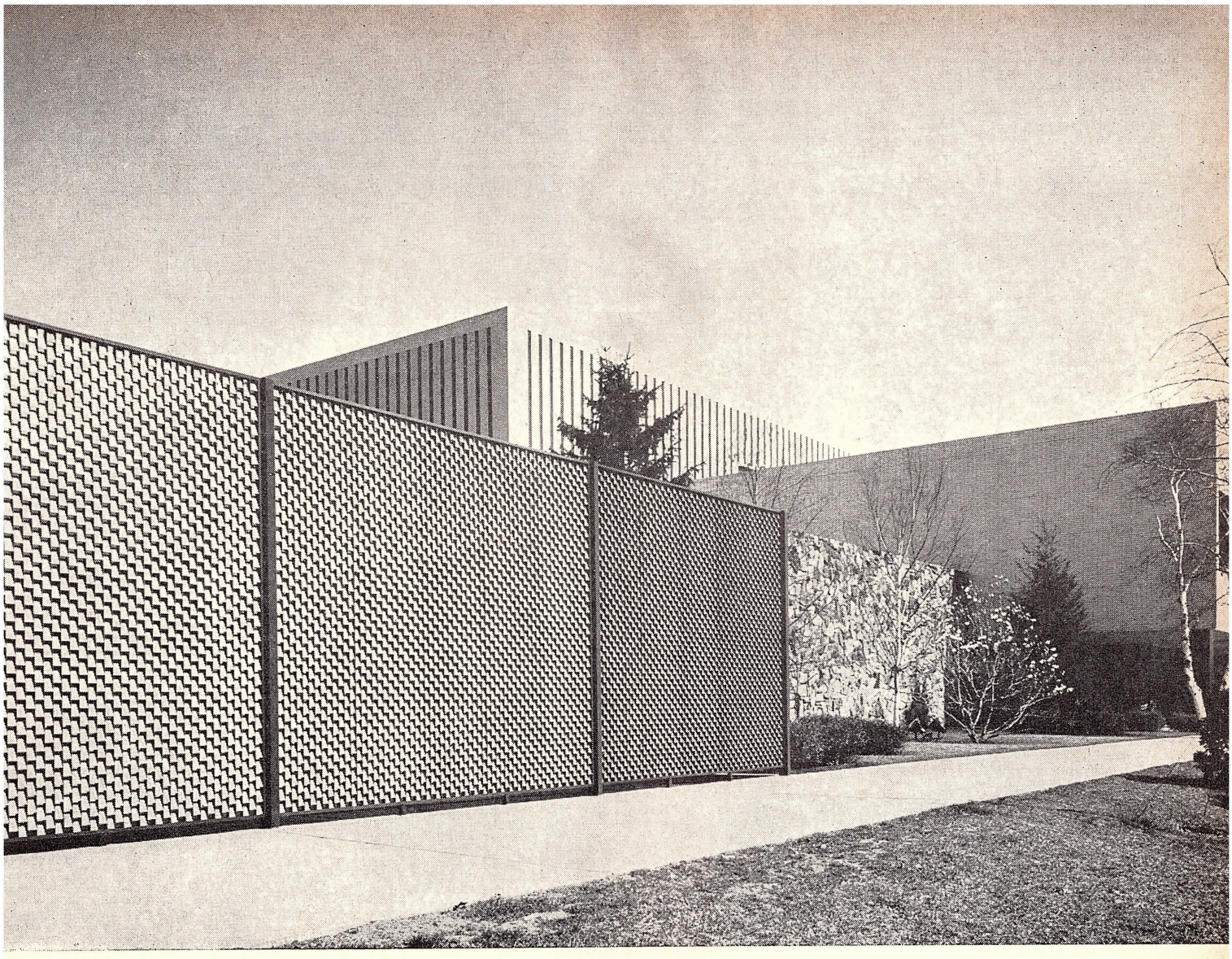
1941 average for each city = 100

Metropolitan Area	1952	1958	1959	1960	1961	1962	1963	1964 (Quarterly) 1st	2nd	3rd	4th	1965 (Quarterly) 1st	2nd	3rd	4th
U.S. AVERAGE 21 Cities	213.5	248.9	255.0	259.2	264.6	266.8	273.4	274.7	276.8	278.6	279.3	279.5			
Atlanta	223.5	277.7	283.3	289.0	294.7	298.2	305.7	310.0	312.3	313.4	313.7	313.9			
Baltimore	213.3	251.9	264.5	272.6	269.9	271.8	275.5	277.2	279.3	280.5	280.6	280.5			
Birmingham	208.1	233.2	233.2	240.2	249.9	250.0	256.3	258.0	259.9	260.1	260.9	261.2			
Boston	199.0	230.5	230.5	232.8	237.5	239.8	244.1	246.1	247.9	251.3	252.1	251.7			
Chicago	231.2	273.2	278.6	284.2	289.9	292.0	301.0	302.2	304.5	305.1	306.6	306.5			
Cincinnati	207.7	250.0	250.0	255.0	257.6	258.8	263.9	265.1	267.1	268.9	269.5	269.4			
Cleveland	220.7	257.9	260.5	263.1	265.7	268.5	275.8	276.3	278.4	282.0	283.0	282.3			
Dallas	221.9	230.5	237.5	239.9	244.7	246.9	253.0	253.7	255.6	255.6	256.4	256.9			
Denver	211.8	252.8	257.9	257.9	270.9	274.9	282.5	282.6	284.7	287.3	287.3	287.3			
Detroit	197.8	239.8	249.4	259.5	264.7	265.9	272.2	272.7	274.7	277.7	277.7	277.7			
Kansas City	213.3	235.0	239.6	237.1	237.1	240.1	247.8	246.2	248.0	249.6	250.5	251.2			
Los Angeles	210.3	253.4	263.5	263.6	274.3	276.3	282.5	284.0	286.1	286.1	288.2	288.9			
Miami	199.4	239.3	249.0	256.5	259.1	260.3	269.3	270.1	272.1	273.1	274.4	274.4			
Minneapolis	213.5	249.9	254.9	260.0	267.9	269.0	275.3	275.0	277.1	281.6	282.4	283.4			
New Orleans	207.1	235.1	237.5	242.3	244.7	245.1	248.3	247.1	248.9	249.3	249.9	250.5			
New York	207.4	247.6	260.2	265.4	270.8	276.0	282.3	284.8	286.9	289.7	289.4	290.2			
Philadelphia	228.3	257.6	262.8	262.8	265.4	265.2	271.2	271.1	273.1	274.5	275.2	275.5			
Pittsburgh	204.0	236.4	241.1	243.5	250.9	251.8	258.2	260.8	262.7	262.9	263.8	264.0			
St. Louis	213.1	239.7	246.9	251.9	256.9	255.4	263.4	266.8	268.8	271.4	272.1	272.9			
San Francisco	266.4	308.6	321.1	327.5	337.4	343.3	352.4	358.2	360.9	364.1	365.4	366.6			
Seattle	191.8	225.8	232.7	237.4	247.0	252.5	260.6	260.1	262.0	265.7	266.6	265.1			

HOW TO USE TABLES AND CHARTS: Building costs may be directly compared to costs in the 1941 base year in tables A and B: an index of 256.3 for a given city for a certain period means that costs in that city for that period are 2.563 times 1941 costs, an increase of 156.3% over 1941 costs.

TABLE A. Differences in costs between two cities may be compared by dividing the cost differential figure of one city by that of a second; if the cost differential of one city (10.0) divided by that of a second (8.0) equals 125%, then costs in first city are 25% higher than costs in second. Also, costs in second city are 80% of those in first (8.0 ÷ 10.0 = 80%) or 20% lower in the second city

TABLE B. Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other: if index for a city for one period (200.0) divided by index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than those of the other. Also, second period costs are 75% of those of the other date (150.0 ÷ 200.0 = 75%) or 25% lower in the second period. CHART 1. Building materials indexes reflect prices paid by builders for quantity purchases delivered at construction sites. CHART 2. The $1.20 per hour gap between skilled and unskilled labor has remained fairly constant. CHART 3. Barometric business indicators that reflect variations in the state of the money market



Architect: Abbott, Merkt & Co., New York City

BORDEN ARCHITECTURAL DECOR PANELS: DECA-GRID

Shown above: Custom-designed Borden Deca-Grid panels with tilted spacers, used to separate and screen the service area at Saks in Garden City, Long Island.

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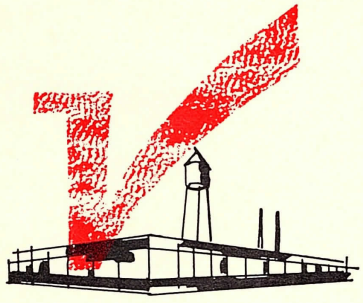
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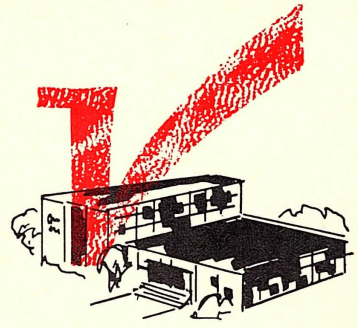
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FACTORIES



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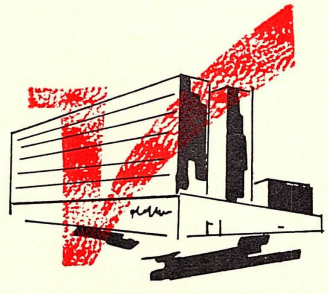


HOSPITALS

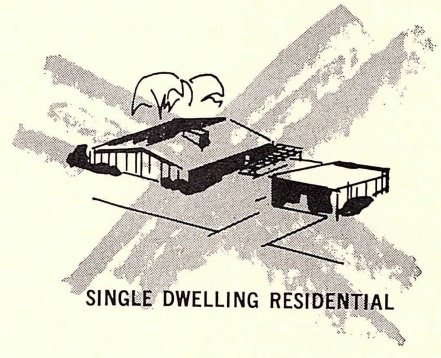
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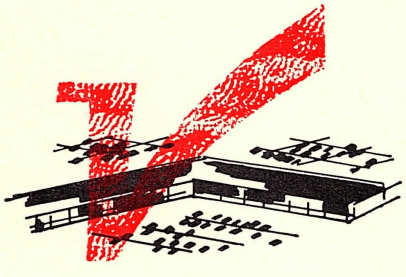


OFFICE BUILDINGS

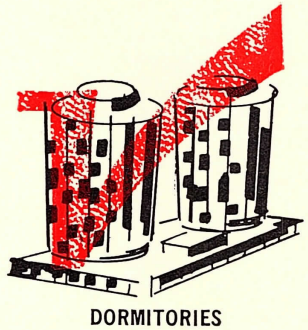


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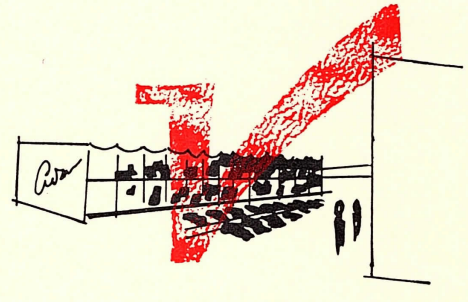
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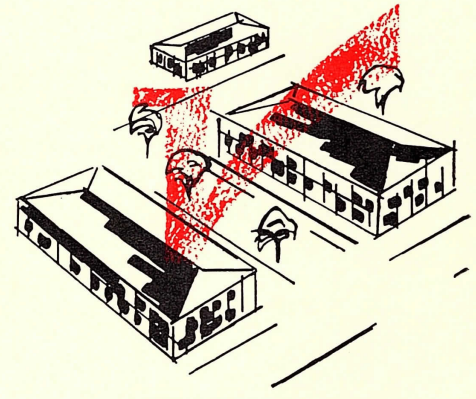
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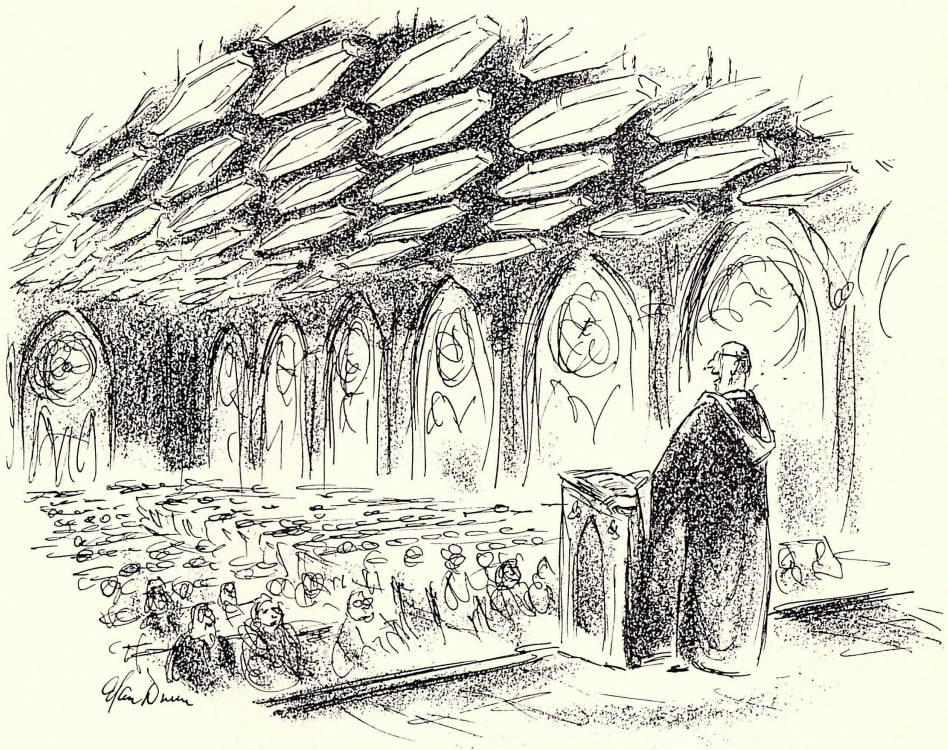
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A.I.A. ELECTS 37 FELLOWS

The American Institute of Architects will advance 37 of its members to the rank of Fellow at its 1965 convention which will be held in Washington, D.C., from June 14-18. This year's list of honorees is a decrease of 22 from the number named last year.

Selection was made by a six-man Jury of Fellows: Linn Smith, Birmingham, Michigan, chairman; Clinton E. Brush III, Nashville, Tennessee; Arthur Q. Davis, New Orleans; Samuel E. Homsey, Wilmington, Delaware; Paul R. Hunter, Los Angeles; and Alfred Shaw, Chicago. Harold T. Spitznagel of Sioux Falls, South Dakota was an attending alternate to the jury.

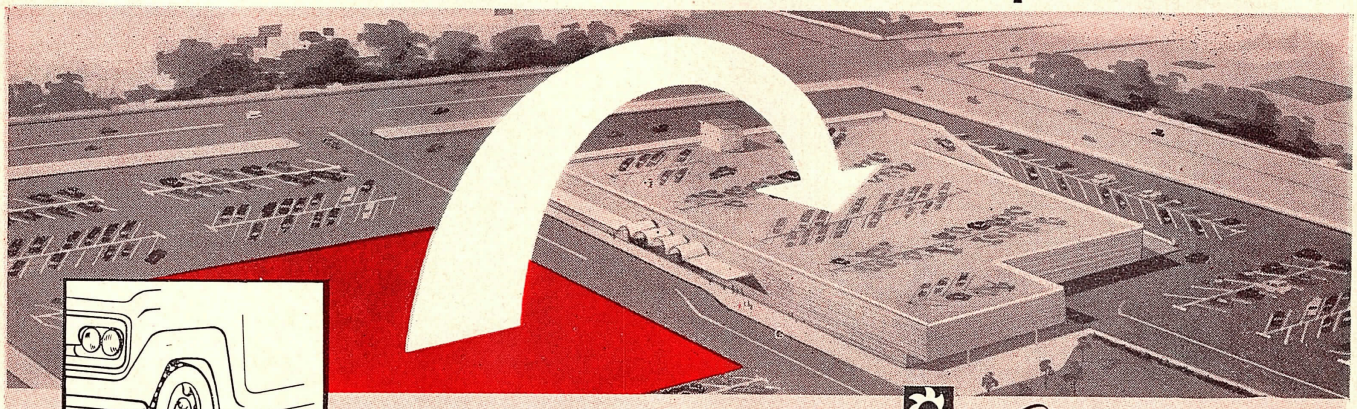
Lawrence B. Anderson, Boston—Design and Education
William F. R. Ballard, New York—Public Service
Richard S. Banwell, San Francisco—Service to the Profession
Giorgio Cavaglieri, New York—Design
Mario C. Celli, McKeesport, Pa.—Public Service and Service to the Profession
James Joseph Chiarelli, Seattle—Public Service
William Francis Cody, Palm Springs, Calif.—Design
Robert Henry Dietz, Seattle—Education
Robert Elkington, St. Louis—Service to the Profession
Joseph Esherick, San Francisco—Design and Education
Joseph T. Fraser Jr., Philadelphia—Education
William Ernest Freeman Jr., Greenville, S. C.—Service to the Profession
Terrell Ray Harper, Dallas—Service to the Profession
Harwell Hamilton Harris, Raleigh, N. C.—Design
Frank L. Hope Sr., San Diego—Public Service and Service to the Profession
Philip C. Johnson, New York—Design
Lee B. Kline, Los Angeles—Service to the Profession
Amedeo Leone, Detroit—Public Service and Service to the Profession
Robert Andrews Little, Cleveland—Design
Alfred Preis, Honolulu—Public Service
Ralph Rapson, Minneapolis—Design and Education
William H. Scheick, Washington, D. C.—Service to the Profession
Louie Lorraine Scribner, Charlottesville, Va.—Public Service
Jose Luis Sert, Cambridge, Mass.—Design and Education
George Patton Simonds, Oakland, Calif.—Service to the Profession
Frank Robert Slezak, Kansas City, Mo.—Service to the Profession
Gustavus Scott Smitherman, Shreveport, La.—Service to the Profession
Ross Lloyd Snedaker, Salt Lake City—Service to the Profession
Oswald Hagen Thorson, Waterloo, Iowa—Service to the Profession
Frederic Richard von Grossmann, Milwaukee—Service to the Profession
William John Wagner Jr., Des Moines, Iowa—Education
Philip Armour Wilber, Stillwater, Okla.—Education
Fred Carter Williams, Raleigh, N. C.—Service to the Profession
Adrian Wilson, Los Angeles—Public Service and Service to the Profession
Arch Reese Winter, Mobile, Ala.—Design
Karel Henry Yasko, Bethesda, Md.—Public Service
David Norton Yerkes, Washington, D. C.—Service to the Profession

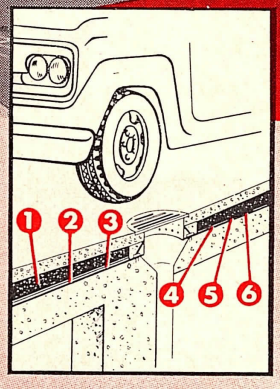
NEWS IN BRIEF

Bill N. Lacy, associate chairman of Rice University's Department of Architecture, will become the first dean of the School of Architecture at the University of Tennessee when it opens in September. Mr. Lacy, 32 years old, has been on the Rice staff since 1961 and taught previously at Oklahoma State University.

Citations for excellence in community architecture have been awarded to the cities of Detroit and Shreveport, Louisiana, by the American Institute of Architects. The A.I.A. established this awards program in January to recognize cities which "successfully realize the objective of creating vital environments for the core of American cities." Detroit was cited for its "vision in implementing a comprehensive plan for the central thirty square miles of Detroit which will transform and revitalize this great metropolitan region." Shreveport was honored as "an excellent example of the economic, social and esthetic value of an architectural plan encompassing buildings, structures, utilities, and their total physical environment."

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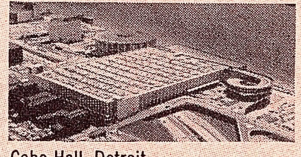
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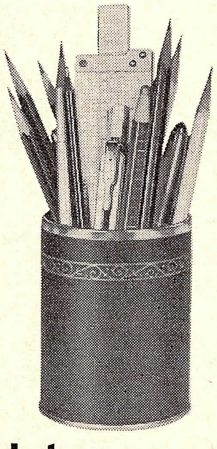
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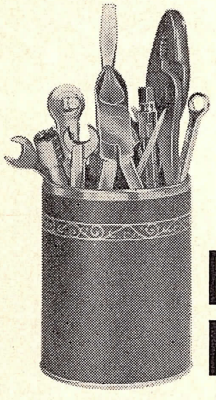
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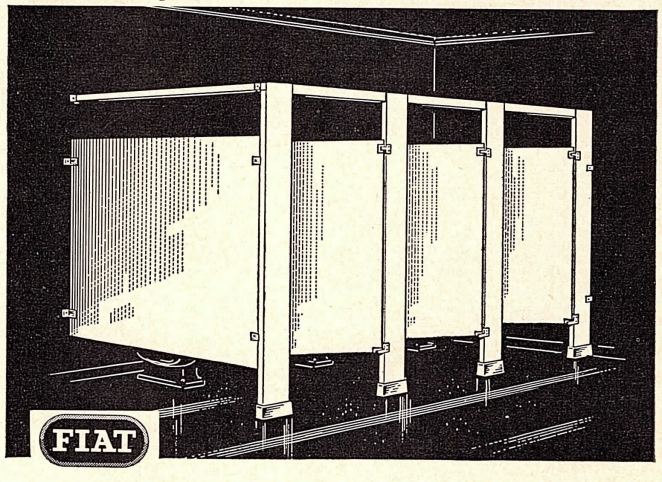
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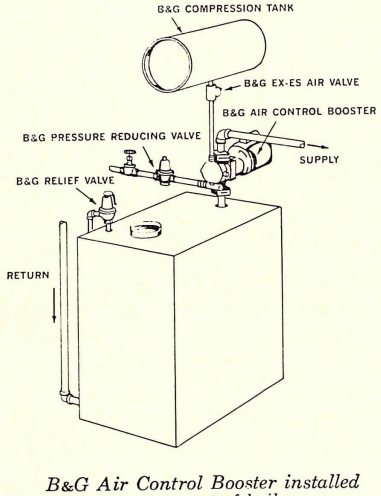
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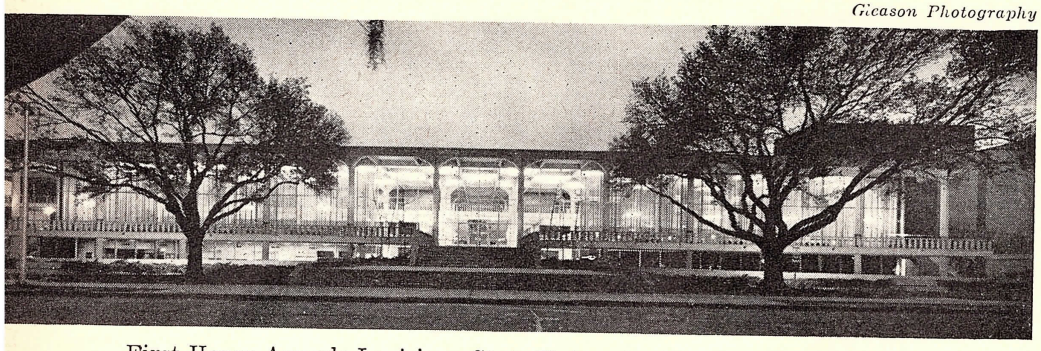
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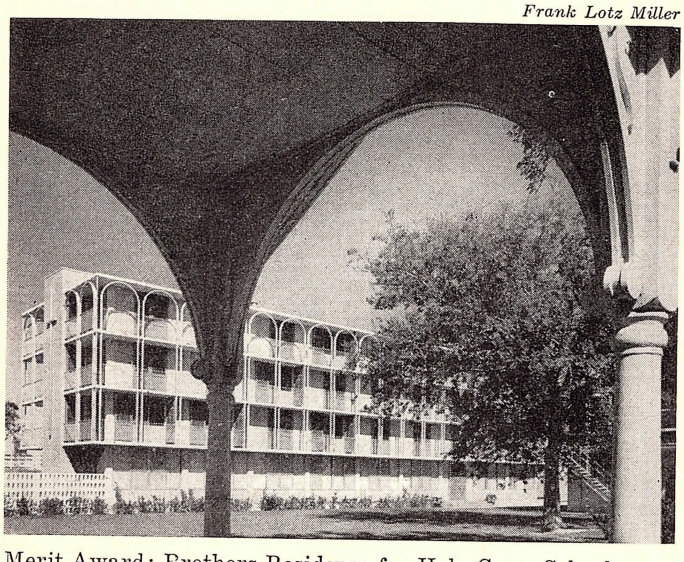


First Honor Award: Louisiana State University Building, Baton Rouge
Associated Architects: Mathes, Bergman & Associates; Wilson & Sandifer; Desmond-Miremont & Associates—Design Architect: John Desmond, Baton Rouge
Structural Engineer: Alfred G. Rayner
Mechanical and Electrical Engineers: Chesson, Forest & Holland
Program Consultant: Porter Butts
General Contractor: R. P. Farnsworth Construction Company



William R. Allen (center), honor awards committee chairman, presents Honor Award Certificate to John Desmond (left) and Earl L. Mathes

Frank Lotz Miller



Merit Award: Brothers Residence for Holy Cross School, New Orleans
Architect: J. Buchanan Blitch, New Orleans
Structural Engineer: Ogle, Rosenbohm & Associates
Mechanical Engineer: Leininger & Associates
Electrical Engineers: Schroeder & Associates
General Contractor: Union Construction Company

GULF STATES AWARDS

One honor award and three merit awards, shown on this page, and five citation awards were presented at the 14th annual Gulf States Regional Conference of the American Institute of Architects held in Biloxi, Mississippi, in March. The First Honor Award building was cited by the jury as " . . . an elegant and sophisticated building with a pleasing structural and spatial unity resulting in fine continuity of interior and exterior space. . . ."

Receiving citation awards were George M. Leake, architect for the Rosedown Plantation Restoration, St. Francisville, Louisiana; Dickson, Jones & Davis, architects, for a municipal building, Huntsville, Alabama; Glankler and Broadwell, architects, for Fire Station No. 5, Alexandria, Louisiana; and Wittenberg, Delony & Davidson, architects for men's dormitories, Southern State College, Magnolia, Arkansas, and Heritage Home, Helena, Arkansas.

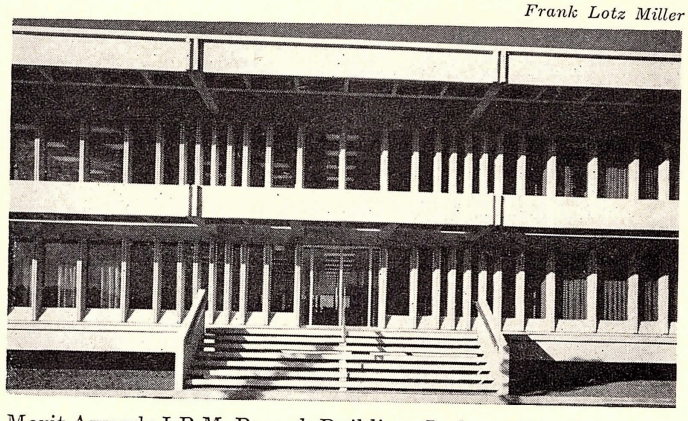
The awards jury includes Charles M. Nes Jr., chairman, director of the Middle Atlantic Region of the A.I.A.; Thomas L. Bosworth, assistant professor of architecture at the Rhode Island School of Design; Imre Halasz, assistant professor of architecture at the Massachusetts Institute of Technology; and Henry A. Millon Jr., associate professor of the history of architecture at M.I.T.

Gene Prescott



Merit Award: Residence, Little Rock, Arkansas
Architects: Cowling and Roark, Little Rock
Structural Engineer: H. Price Roark
Electrical Engineer: George E. Ellefson, Jr.
General Contractor: Jack Scott and Robinson Lumber Company

Frank Lotz Miller



Merit Award: I.B.M. Branch Building, Jackson, Mississippi
Architects: Curtis & Davis, New Orleans
Structural Engineer: Post & Witty
Mechanical Engineer: Albert H. Walters
Electrical Engineer: Leigh H. Watkins III
General Contractor: Howie Construction Company

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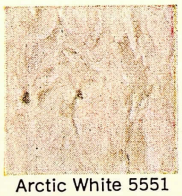
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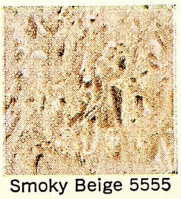
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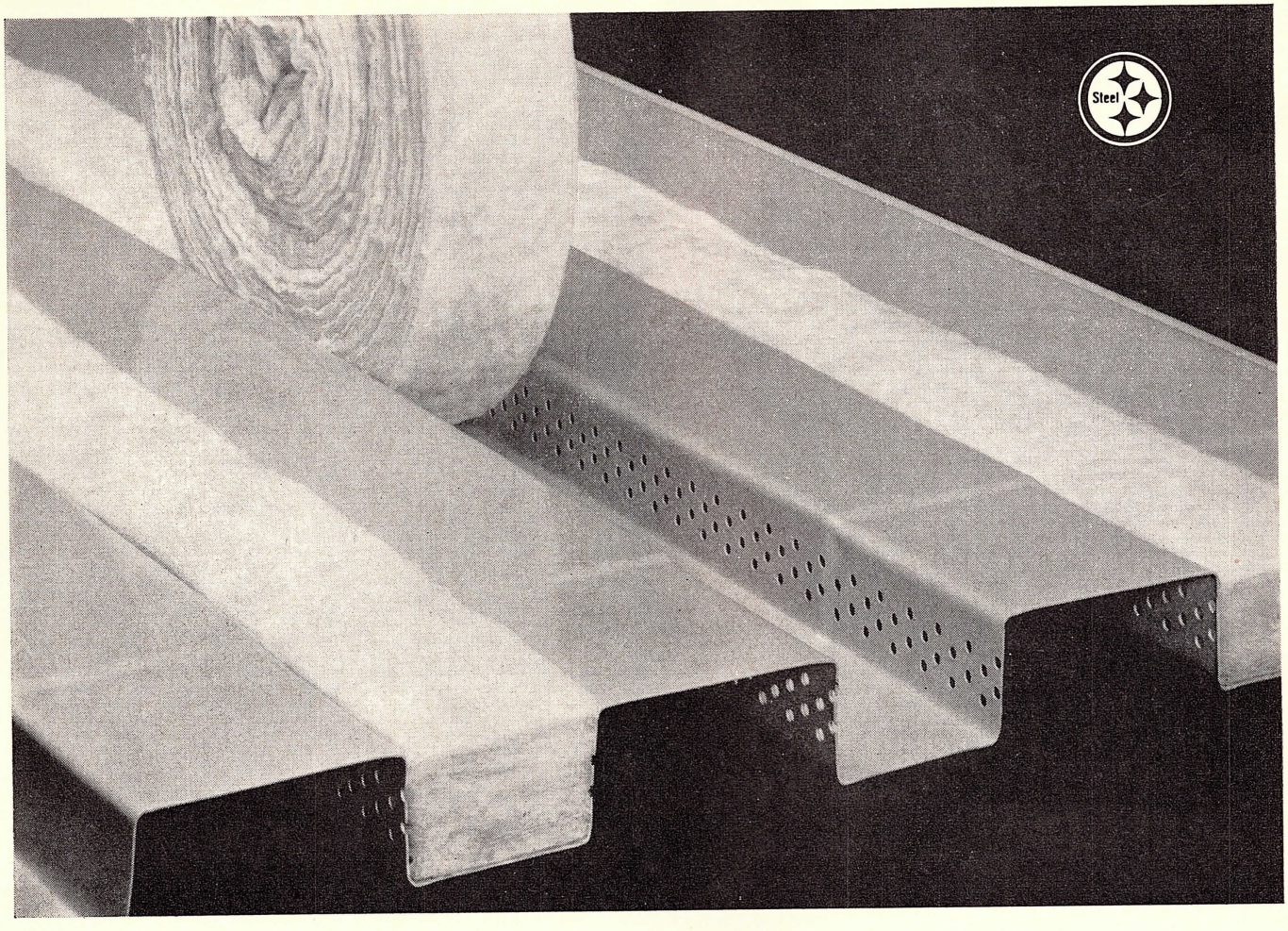
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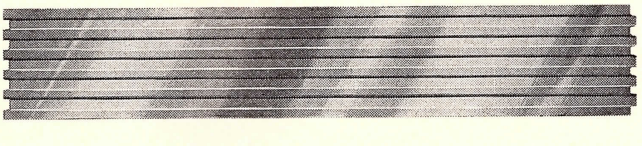
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Call your Wheeling man for complete details.

*Trademark of Parker Rust-Proof Company

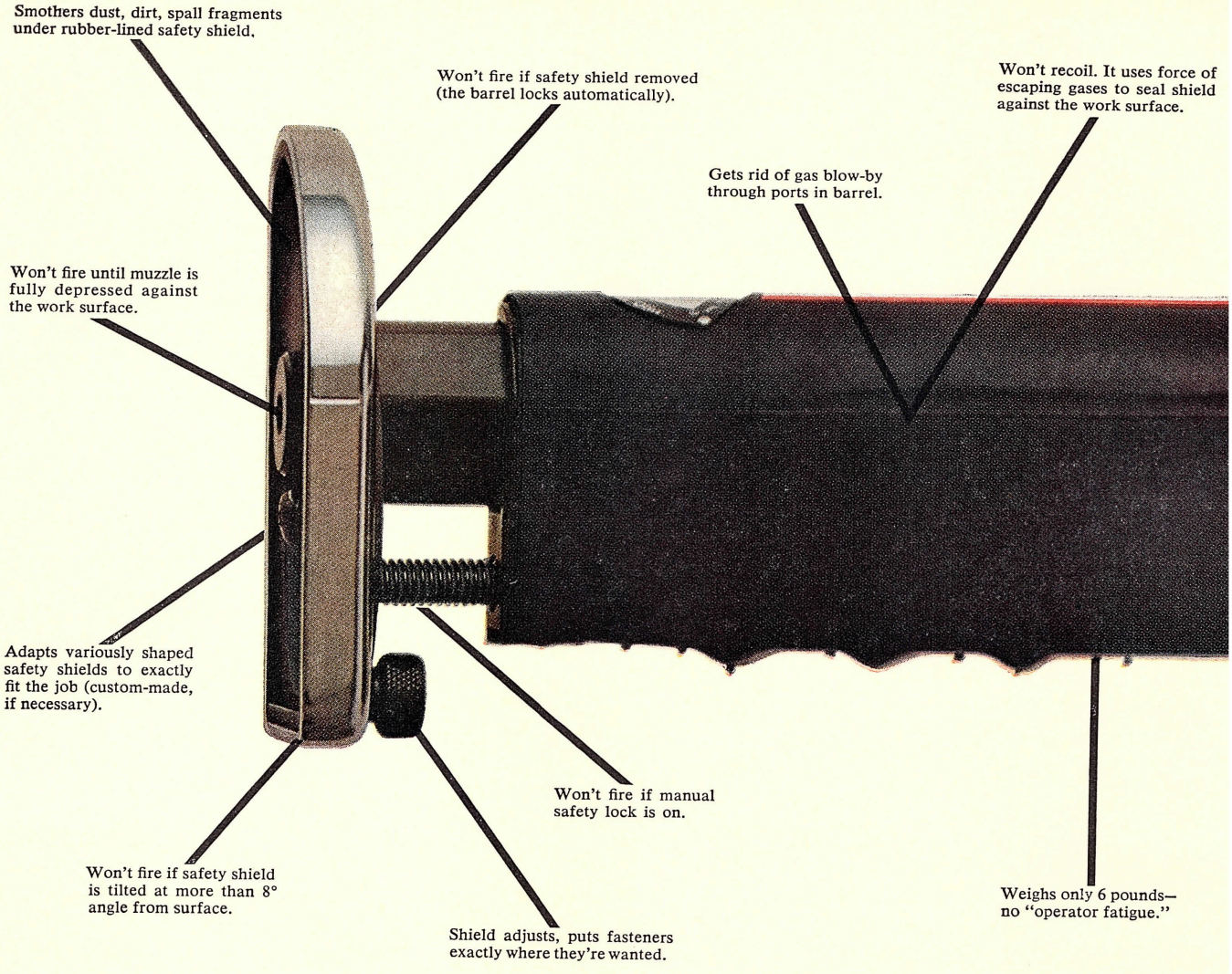
WHEELING CORRUGATING COMPANY/WHEELING, WEST VIRGINIA

IMMEDIATE DELIVERY ON ALL STOCKED ITEMS FROM THESE WAREHOUSES: BOSTON, BUFFALO, CHICAGO, COLUMBUS, DETROIT, KANSAS CITY, LOUISVILLE, MINNEAPOLIS, NEW YORK, PHILADELPHIA, RICHMOND, ST. LOUIS. SALES OFFICES: ATLANTA, HOUSTON, NEW ORLEANS.



Wheeling Steel

For more data, circle 14 on Inquiry Card



See. You don't have to worry

Let's suppose that this Ramset powder-actuated fastening tool is loaded, ready to fire, *with all the safeties off.*

Now. Pull the trigger.

Nothing happens.

Drop it. Clumsily knock it over. Even kick it. It still won't go off.

The only time it will fire is when you press its muzzle practically flat against, say, a concrete slab or a steel "I" beam. *And* lean on it with 35 pounds of pressure (to compress a powerful spring inside the barrel). And *then* pull the trigger.

Pow!

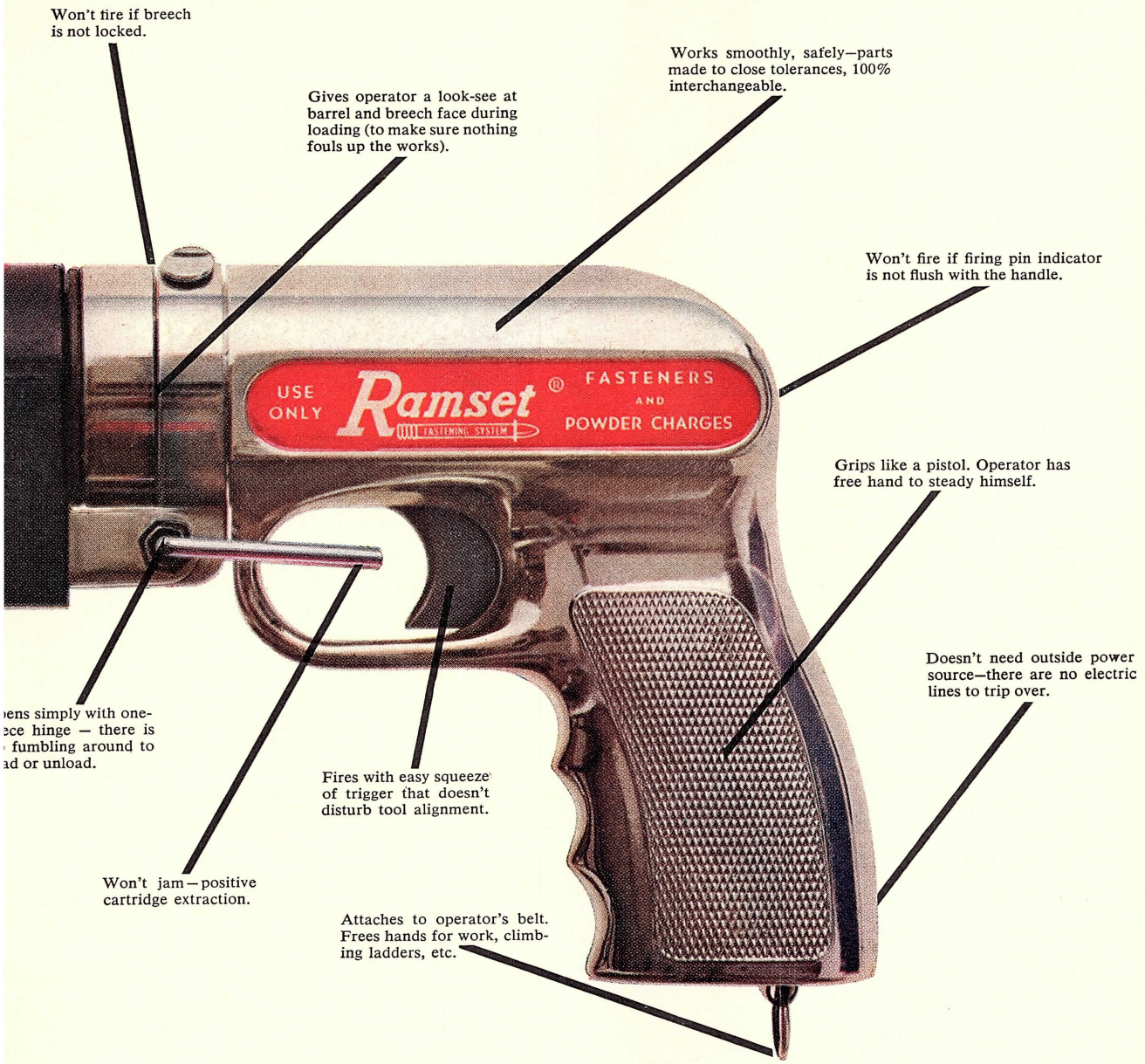
In a split second you send a threaded stud deep into concrete. Or pierce as much as an inch of steel with a drive pin.

Now you can see why we've taken so many precautionary measures.

Fact is, no competitive tool has so many safety devices built into it. (See the whole works listed above.)

But we don't stop there.

Before a worker can use our tool we also insist that he pass our training course conducted right on the job by one of our own Ramset factory-trained specialists.



about itchy trigger fingers.

And, to prove it, he has to carry our credited operator's card.

When he's finished, he not only knows w to be a safe operator; he can open, load, reload and fire the Ramset tool 20 seconds. And average a phenomenal 0 fastenings an hour—*eight times* more an by ordinary drill and plug methods.

This fastening tool, by the way, is the Ramset Jobmaster.®

We've also got a powder-actuated tool called Flite-Chek® (so safe it'll catch fasteners in its muzzle if they're fired incorrectly). And a piston-operated tool called Pow-R-Set.® And a hammer-in-tool we call Shure-Set.® And Tru-Set® fasteners. And Dynabolt® masonry anchors.

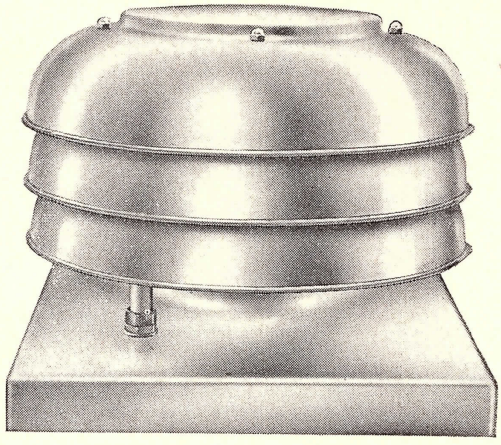
Which is right for your job? Call the Ramset man (look for him in the Yellow Pages under "Tools"). He's a specialist on fastenings. And a stickler on safety.

Come to think of it, he's probably our number one safety device.

Ramset®

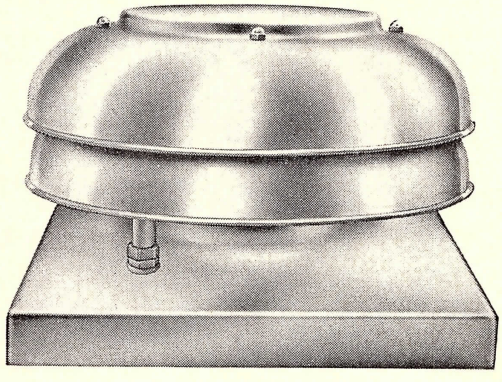
WINCHESTER-WESTERN DIVISION Olin

For more data, circle 15 on Inquiry Card



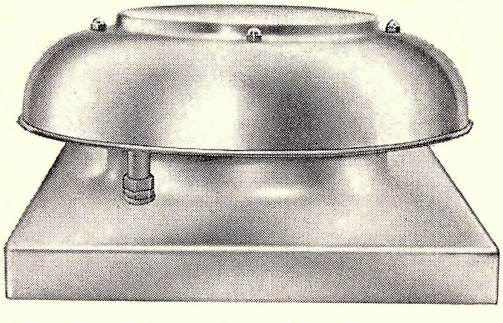
BELT OR DIRECT-DRIVE, CENTRIFUGAL

Spun-Tier belt-drive, 15″ to 48″ wheel.
Spun-Tier direct-drive, 7″ to 42″ wheel.



DIRECT-DRIVE PROPELLER (OR INTAKE)

Spun-Tier direct-drive, 8″ to 48″ propeller.
Spun-Tier intake vent, 6″ to 48″ throat.



BELT OR DIRECT-DRIVE PROPELLER (OR RELIEF VENT)

Spun-Tier belt-drive, 24″ to 48″ propeller.
Spun-Tier direct-drive, 16″ to 48″ propeller.
Spun-Tier relief vent, 6″ to 48″ throat.

They look better, run cooler and last longer...

COOK Spun-Tier® Aluminum Ventilators

The three housings illustrated can provide seven different types of air movement. It is possible you may want to specify all seven on one roof. COOK Spun-Tier construction assures a harmonious-appearing rooftop. Centrifugal, axial, air intake and pressure relief ventilators all have compatible Spun-Tier styling. All have similar silhouettes . . . low, even in the biggest sizes. Rectangular and square intake or relief ventilators up to 96″ long are also available in extruded tier construction.

Direct or belt-drive motor compartments are better ventilated in COOK Spun-Tier ventilators, even when the motor is not running. With the motor operating, air circulation increases. This protects motors and adds to the life of drive belts.

Aluminum construction is used throughout, including the drive assembly, airfoil blower wheel, and the one-piece spun-aluminum base. Standard units are equipped with adjustable drive sheaves and rubber-sealed, pre-lubricated, self-aligning bearings. Integral conduit is provided for easy wiring. The drive assembly floats on vibration isolators.

An exclusive spun-aluminum venturi inlet furnishes positive backdraft protection. Propellers on axial types are made from stamped or cast aluminum components.

See Sweet's Architectural File, Section 20C/co, showing the complete Spun-Tier line and list of representatives.

AD NO. ST-1

LOREN COOK CO.
Dept. AR-5, 640 North Rocky River Drive
Berea, Ohio

For more data, circle 16 on Inquiry Card

ARCHITECTURAL RECORD

Western Section

including Western Architect and Engineer

WESTERN SECTION EDITOR: *Elisabeth Kendall Thompson, A.I.A.*

John Hancock Building, 255 California Street, San Francisco 11, California

Win the War by Fighting the Battles

Who would have thought, even two years ago, that it would be respectable, not to say fashionable, to talk beauty? Time was—and for a long period—when just to mention the word beauty juxtaposed cold shoulders to warm enthusiasm, and the word aesthetics aroused suspicions as to sanity and even morals. But times have changed.

Suddenly it is fashionable to care about beauty—not personal beauty, the right to which seems unchallenged except among the lower echelons of the academic world—but beauty as an attribute of the public environment. To those who have for so long wistfully hoped for such a renaissance, the words and endorsements and encouragements from high places seem incredible indeed.

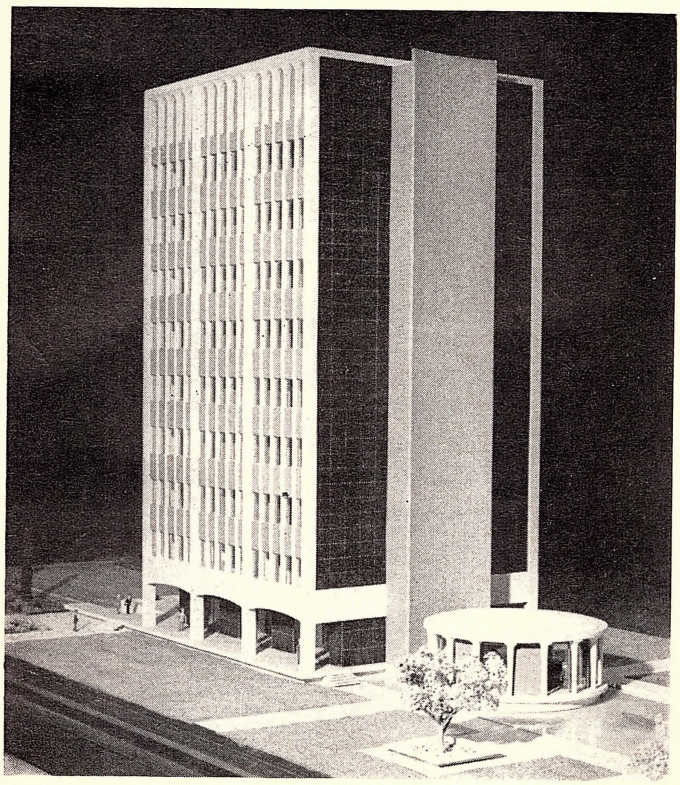
How did this come about? Through unremitting effort, never-ending stress, the careful citing of precedent whose implication was inescapable, a growing number of voices raised in protest against the disregard for environmental quality—*and specific actions at the local level.*

It is necessary and good to have federal approval, endorsements of important persons, national programs, for with these comes the aura of respectability and urgency essential to accomplishment in an undertaking of so broad a scope. But these can only be great generalities. If they are not focused in the specific needs of a particular area of concern—at whatever level—nothing happens. The generalities bring popular support, but they do not provide leadership for the specific endeavor. That must come from the local area.

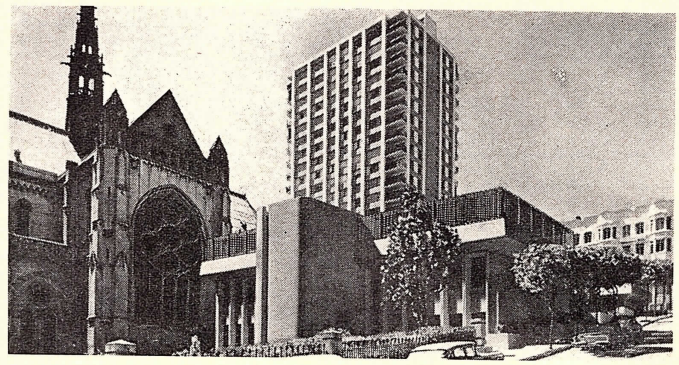
And it is coming. Here in the West, the new emphasis on quality of design, of environmental amenity, of community appearance, is encouraging. In California the Governor's Conference on Good Design, held last December, set the pace for a series of design workshops now being held in Sacramento for the decision-makers of the State's various departments. The newly-formed California Arts Commission has already announced a series of awards in the arts, including design of the physical environment, which it will make in June to encourage good design by public agencies. Some recent California court decisions indicate a turning point in judiciary approach to aesthetic considerations, too long overly influenced by the 1909 Varney vs. Green case on billboards and signs.

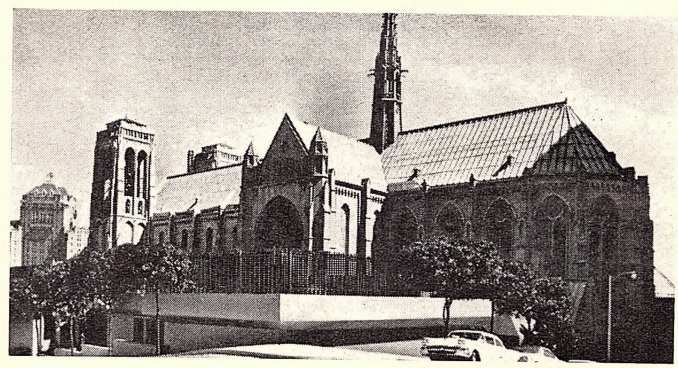
But California is not alone in this now-newsworthy concern. Pick up a newspaper from one of the West's larger cities: six to one, the paper contains at least one article dealing with a matter of community aesthetics, whether it is sign and billboard legislation under way, as in Honolulu, or the design of a new bridge, as in Portland, or a freeway route, as in almost any of our Western Cities. In some cities, enlightened public officials—like the mayor of Honolulu who has appointed a Committee for Action on Beautification of the City—and governmental bodies are actively supporting proposals and new ordinances which are designed to improve the community's appearance and thus its cultural quality. For it is axiomatic that culture and blight are not hand-in-hand companions. And blight may have many faces.

The American Institute of Architects' "War on Ugliness," developed by Seattle architect and Institute regional director, Robert L. Durham, is catching on as a program of national importance. But it will amount to no more than airy talk if, at the community level, architects are not ready with their skills and their imagination to lead, to assist, to vitalize, and revitalize, the citizen groups who will look to them in this campaign for beauty—beauty, respectable, desirable, at last. And perhaps even attainable. If we will, it can be so. —*E.K.T.*

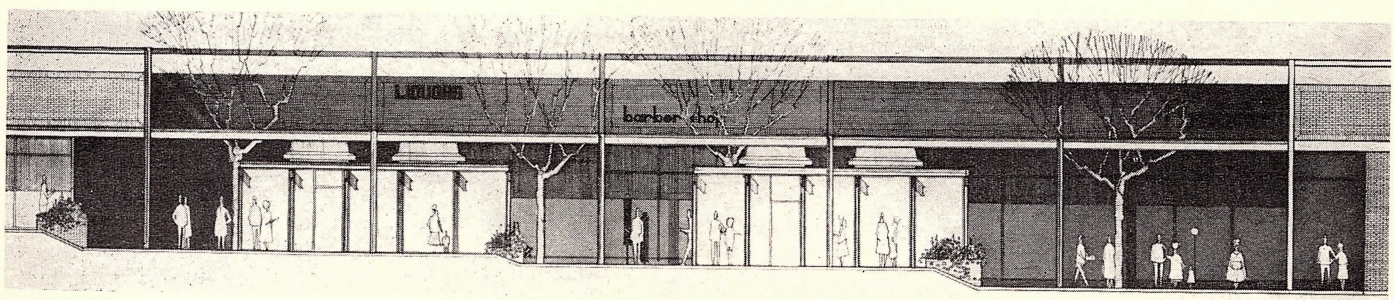


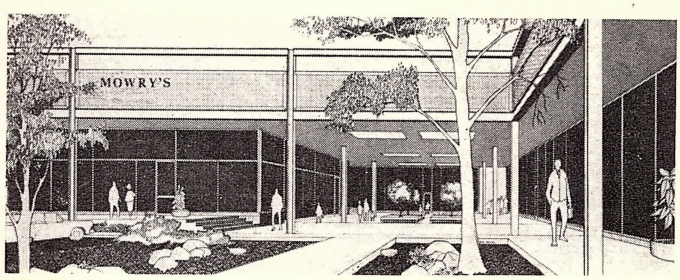
FIRST HIGH-RISE FOR CAL TECH: Cal Tech's first high-rise building—the nine story Millikan Library—is also the eighteenth and last building in the college's privately financed $20 million expansion program. Tallest building on the campus, the library is of reinforced concrete with precast exposed aggregate spandrels, except on the east and west walls which are faced with blue-gray granite. A round pavilion at the east end of the building will house Millikan memorabilia and papers: Circulation and special rooms are on the first floor; office catalogs and reference areas on the second; departmental libraries on floors three through nine. Architects and engineers: Flewelling and Moody

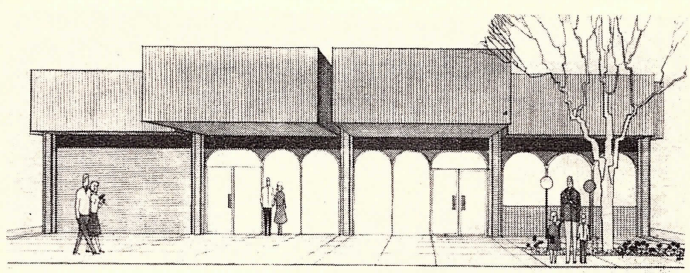




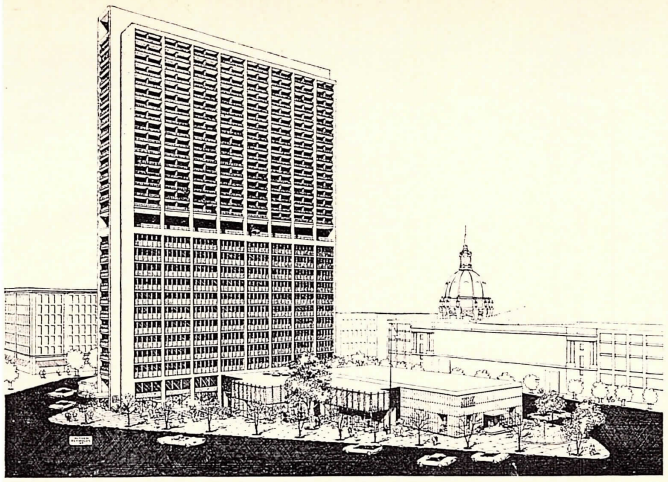
SCHOOL ON CATHEDRAL SITE: The new building for the Cathedral School for Boys, to be located on a site adjoining the newly completed Grace Cathedral in San Francisco, constituted a problem in meeting program requirements and at the same time not interfering with the view of the cathedral. By making the school a low building, using a flat roof (which doubles as a deck for outdoor play) and matching concrete color and texture to the material of the Cathedral, the new building will intrude hardly at all on the view of the cathedral, uphill or downhill. The new building will provide two floors of classrooms, administrative offices and library. Classrooms open onto the Cathedral close for quiet as well as a view of the garden. Architects: Rockrise and Watson



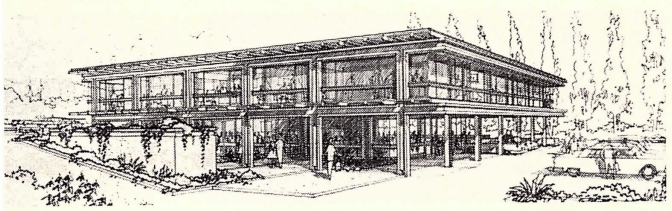




DENVER REDEVELOPMENT: This shopping center in the Avondale Neighborhood Rehabilitation Project, Denver's first redevelopment project, is due to be completed in September. Included in the shopping center are a supermarket, service shops, a restaurant—the Pizza Oven—and a filling station. Shops open onto a landscaped mall. Proposed for future development is a medical building. Architect: Donald R. Roark



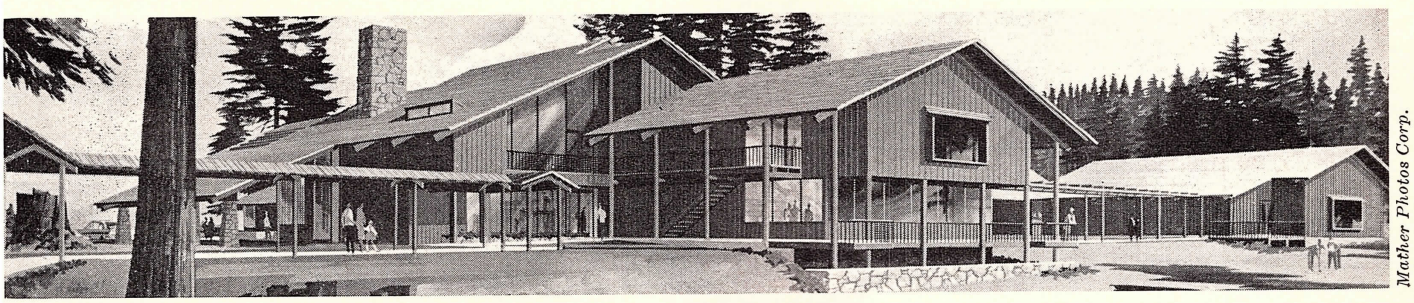
OFFICE-APARTMENT BUILDING: Both offices and apartments will be incorporated in this 30-story building now being built in San Francisco on the site of the lavish movie palace of the 1930's, the Fox. The Fox Plaza will have shops on its first two floors, offices on the next 10 floors, mechanical equipment on the 13th floor, and apartments—28 to a floor—on floors 14 to 29. Shops, restaurant and building lobbies will open onto a large enclosed plaza. Architects and engineers: Victor Gruen Associates, Edgardo Contini, partner in charge. Foundation engineer: B. L. Nishkian. Contractor: Cahill Construction Company



OFFICE BUILDING AND DISPLAY GALLERY: Entrance to this building, for sales and executive offices of Rena-Ware Distributor, makers of stainless steel cooking utensils, is by a bridge spanning a sunken garden and through a 100-foot long gallery where the company will display an exhibition of its product's development. Executive and general offices are on the upper floor; conference room and dining area, opening onto a brick-paved patio, are on the lower level, as are the IBM tabulating department, print shop, warehouse and art department. Architects: Mithun and Associates. Structural Engineers: Gerard Torrence. Electrical engineer: Howard Johnson and Associates. Mechanical engineers: Richard Stern. Contractor: Simone Construction Company

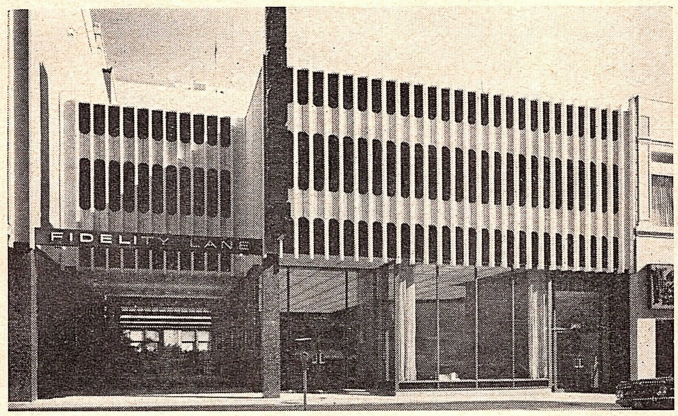


LOS ANGELES' NEW SKYSCRAPER: Occidental Center, a four-building office complex in downtown Los Angeles, was completed last month. The Center's 32-story tower is currently the city's tallest commercial building. On its thirty-second level is a restaurant with a panoramic view of the metropolitan area and the surrounding mountains, and on the roof top is a heliport. Vertical anodized aluminum fins and projecting brows and gray glass provide glare and sun control. Architects: William L. Pereira and Associates



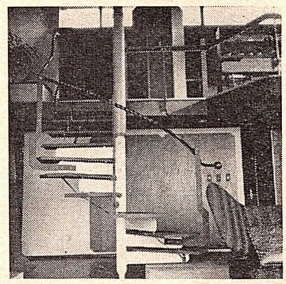
Mather Photos Corp.

SEASHORE RESORT LODGE: Salishan Lodge, a convention and resort complex on the ocean overlooking Siletz Bay, near Taft, Ore., is to open this summer, providing various lounge, dining and cocktail rooms in the main building, a banquet and conference room in an adjoining building, and 96 rooms in clusters of eight around these main buildings. The lodge is part of the new residential resort community of Salishan Beach, master-planned several years ago by the Portland Office of Skidmore, Owings and Merrill, architects, and now being developed by Salishan Properties, Inc. Houses on the 220 individual lots are being designed by architects selected by the property owners. Architect for the lodge complex is John Storrs

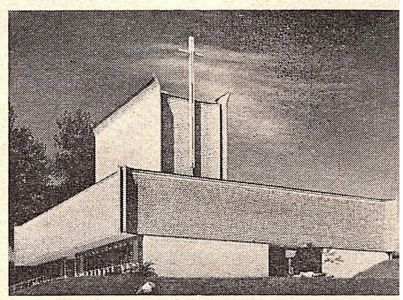


Hugh N. Stratford

SPECIAL CITATION OF MERIT: Fidelity Lane, 1622 Fourth Avenue, Seattle. Architects: Durham, Anderson and Freed



Wendell H. Lovett residence, Bellevue, Washington. Architect: Wendell H. Lovett



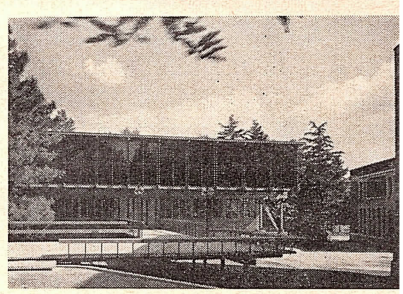
Japanese Presbyterian Church, Seattle. Architects: Kirk, Wallace, McKinley and Associates. Contractor: Rudy Simone Construction Co.

SEATTLE BUILDINGS, URBAN DESIGN WIN AWARDS

Four buildings and an urban design project have won awards in the annual honors program of the Seattle chapter, American Institute of Architects. The three-man jury, which selected winners from the 51 entries submitted in the program, was made up of DeNorval Unthank of the firm of Wilmsen, Endicott and Unthank of Eugene and Portland, Ore.; Professor Richard Alden of the College of Architecture, University of Washington; and Professor Arthur Erickson of the Architecture Department, University of British Columbia. In addition to the award winners shown here, the chapter followed its custom of honoring an outstanding older structure. This year's citation went to the L. C. Smith Building, Seattle, by Gaggin and Gaggin, architects of Syracuse, New York, completed in 1914.



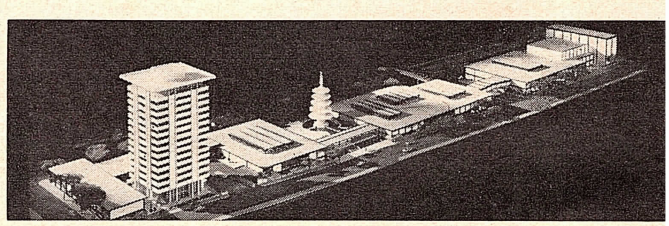
Arthur and Winnifred Haggett Hall, University of Washington, Seattle. Architects: Kirk, Wallace, McKinley and Associates. Contractor: Howard S. Wright Co.

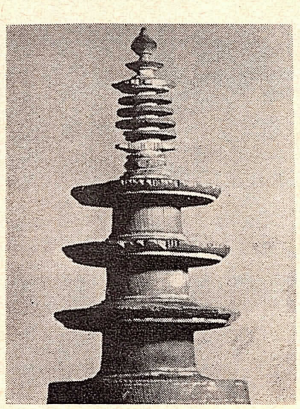


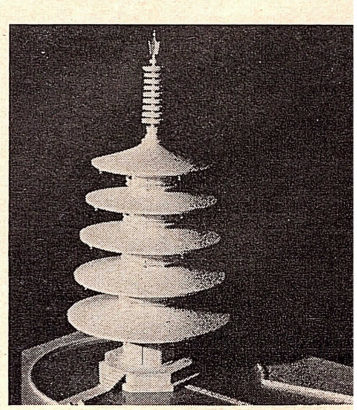
Hugo Winkenwerder Forest Sciences Laboratory, University of Washington, Seattle. Architects: Grant, Copeland and Chervenak. Contractor: Baugh Construction Co.

GROUND BROKEN FOR JAPANESE CULTURAL AND TRADE CENTER

A unique and highly picturesque redevelopment project in San Francisco's Western Addition area finally gave some evidence of action when ground breaking ceremonies were held recently for the long-heralded Japanese Cultural and Trade Center. Proposals for the center have been under consideration and development for almost five years. Included in the plans for the center are a hotel with Japanese accommodations (rooms, baths and restaurant); a dinner-theater for Japanese stage productions; exhibit areas, shops, a bank and a gas station whose attendants will wear Oriental dress and whose signs will be in Japanese. Focal point of the landscaped central court will be the "modern" Peace Pagoda, designed by Yoshiro Tanaguchi, Japanese architect. An underground garage for 800 cars is also a part of the project plans. The developers (for the center are National-Braemar, Inc.; for the garage, Western Addition Garage Corporation, a nonprofit corporation) have not as yet announced a target date for completion of the center. Architects are Minoru Yamasaki and Associates of Detroit and Van Bourg/Nakamura & Associates of Berkeley, California.







REDONDO GETS RENEWAL FUNDS

Since Proposition 14, an initiative to repeal California's anti-discrimination-in-housing law, passed last November, federal funds for urban renewal have been held up and projects in Pasadena, Fresno, Richmond, Redondo Beach and San Francisco—all near the contract phase—held in abeyance. Until court tests of the proposition can determine its constitutionality—or non-constitutionality—funds are being released only for projects now in progress. A petition to the California Supreme Court, filed by the Redevelopment Agency of Fresno, is now pending.

Meanwhile, the first funds to be unfrozen by the Housing and Home Finance Agency have been given to Redondo Beach, a coastal city near Los Angeles, which has had a redevelopment project underway in its downtown area. Although the funds cannot be spent for property acquisition, the city will be able to proceed with its appraisals in the 50-acre section of the city which constitutes the renewal area.

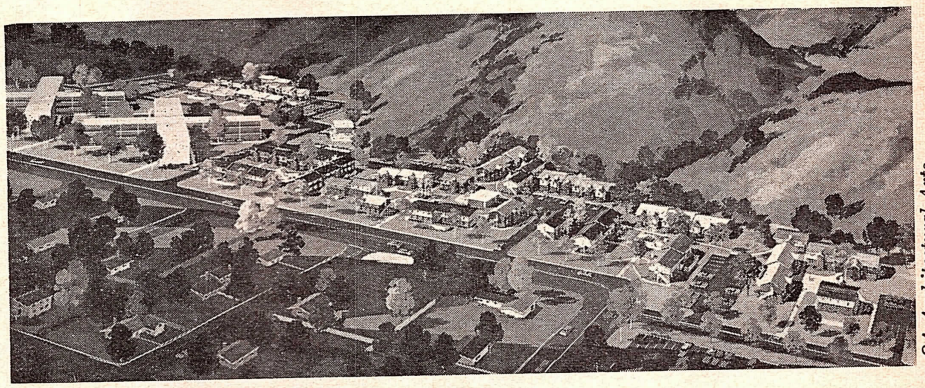
MAUI INN TO BE ENLARGED

The historic Pioneer Inn at Lahaina, Maui, in the state of Hawaii, is to be enlarged to provide three times the present number of hotel rooms and will also undergo extensive remodelling. In all, 32 new rooms, a swimming pool and bandstand and new shops will be added.

The present lobby will become a dining room. A theater, shops and filling station now on the property will be torn down to make way for the two-story addition to contain hotel rooms on the second floor and shops on the street level.

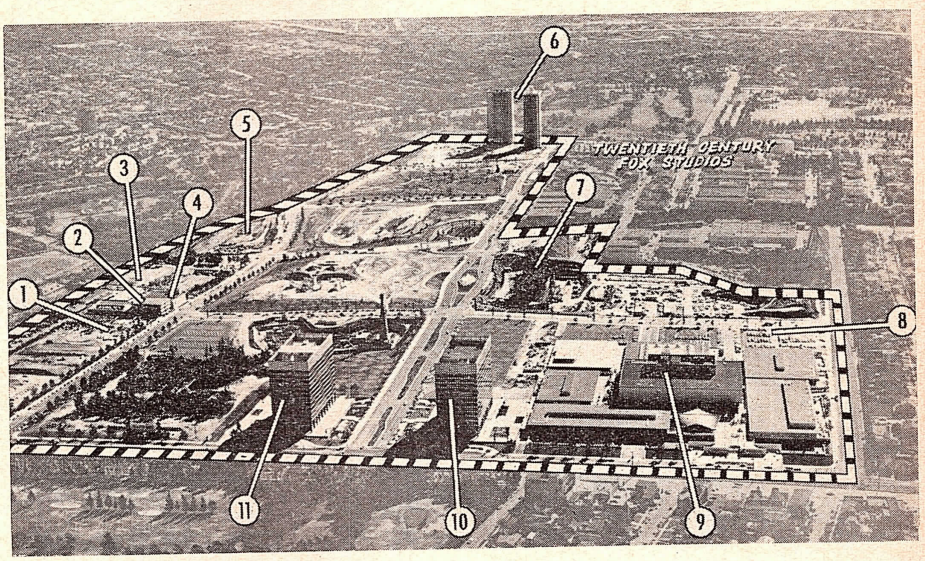
The present Pioneer Inn was built on the island of Lanai, where it functioned as the headquarters of a sugar company. When the company failed, the building was demounted and floated across to Maui where it was re-erected in 1901.

WESTERN BUILDINGS IN THE NEWS



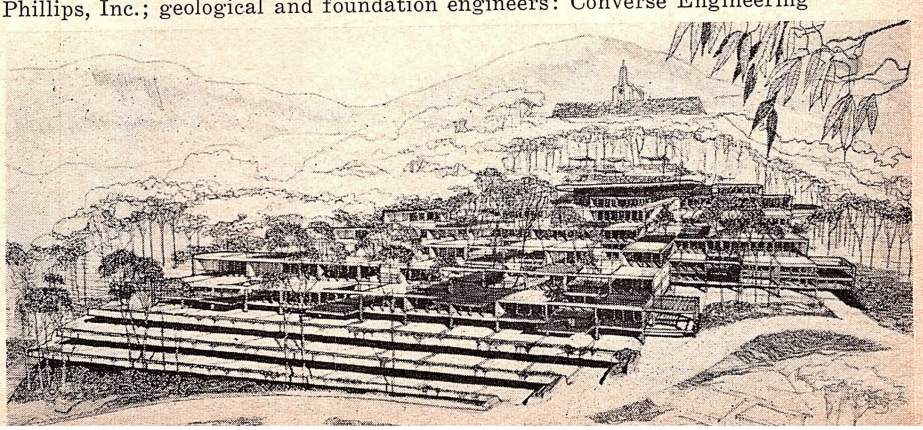
QA Architectural Arts

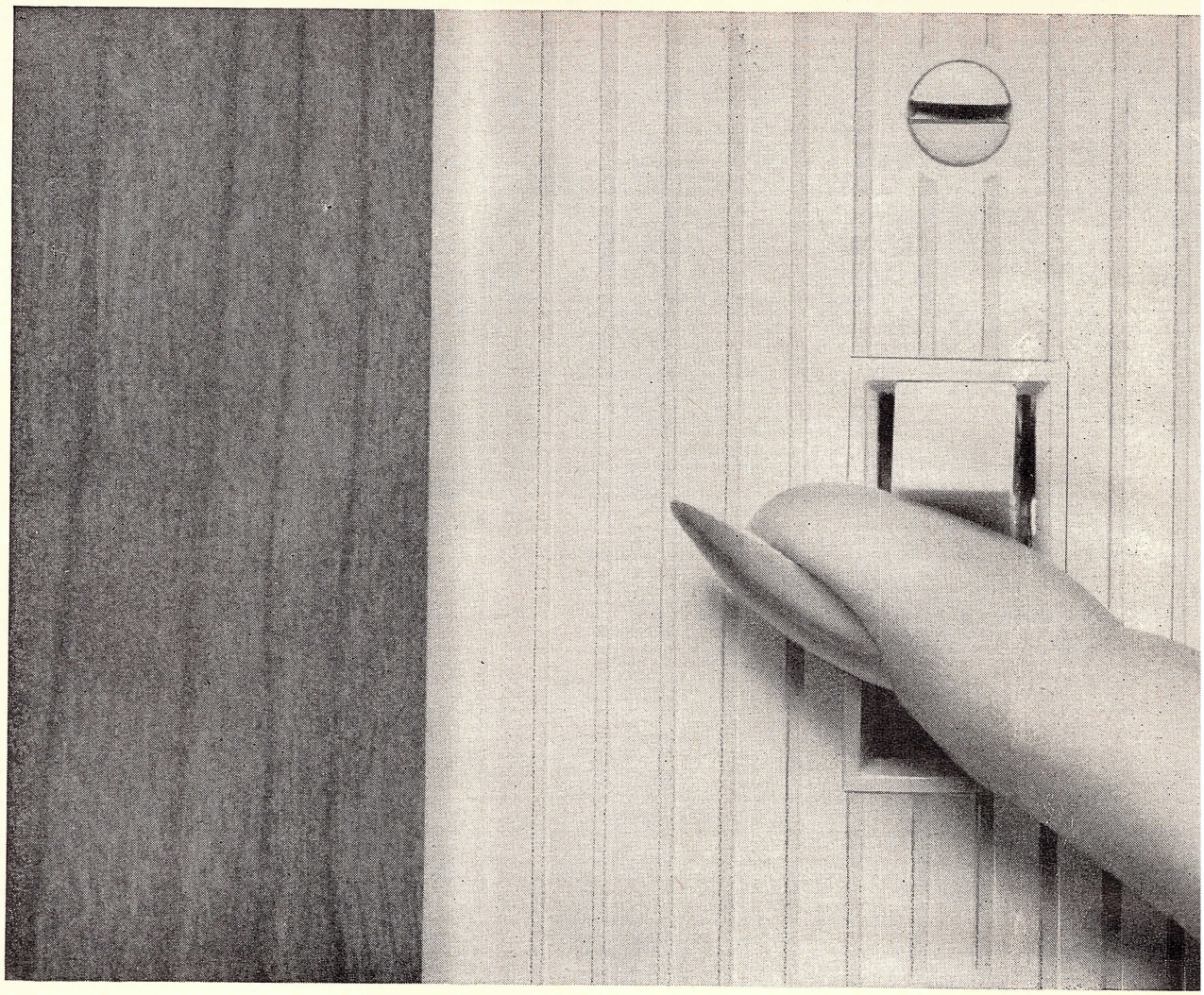
HOUSING FOR MARRIED STUDENTS: Montana State University of Missoula is building this complex of two-story apartment buildings to house married students now housed in temporary wartime structures. The new buildings are set in a landscaped area where all utilities will be underground. Fox, Ballas and Barrow are architects



PROGRESS AT CENTURY CITY: The first phase of construction at Century City, the community being developed on the site of the old 20th-Century Fox studios in Los Angeles, is nearly completed, and phase two is scheduled to begin this spring. Already completed and in use are the two office buildings and shopping center at the entrance by Welton Becket & Associates, and the apartments at the opposite end of the site by I. M. Pei, Automobile Club building and Century City Service Center also by the Becket firm. Under construction is the Century Plaza Hotel (Minoru Yamasaki & Associates, architects) and two additional apartment buildings

TERRACED APARTMENTS: The 50 apartment units of this project, set among existing trees, "cascade" down the hilly site with minimum disturbance to the hillside. Walkways and courts connect clusters of units. Structural system, made up of concrete columns and grade beams, with glue-laminated wood beams, provides independent units for sound insulation. Architects: Bodrell Joer'dan Smith & Associates; structural engineer: Woodward Tom; mechanical and electrical engineer: Ralph E. Phillips, Inc.; geological and foundation engineers: Converse Engineering





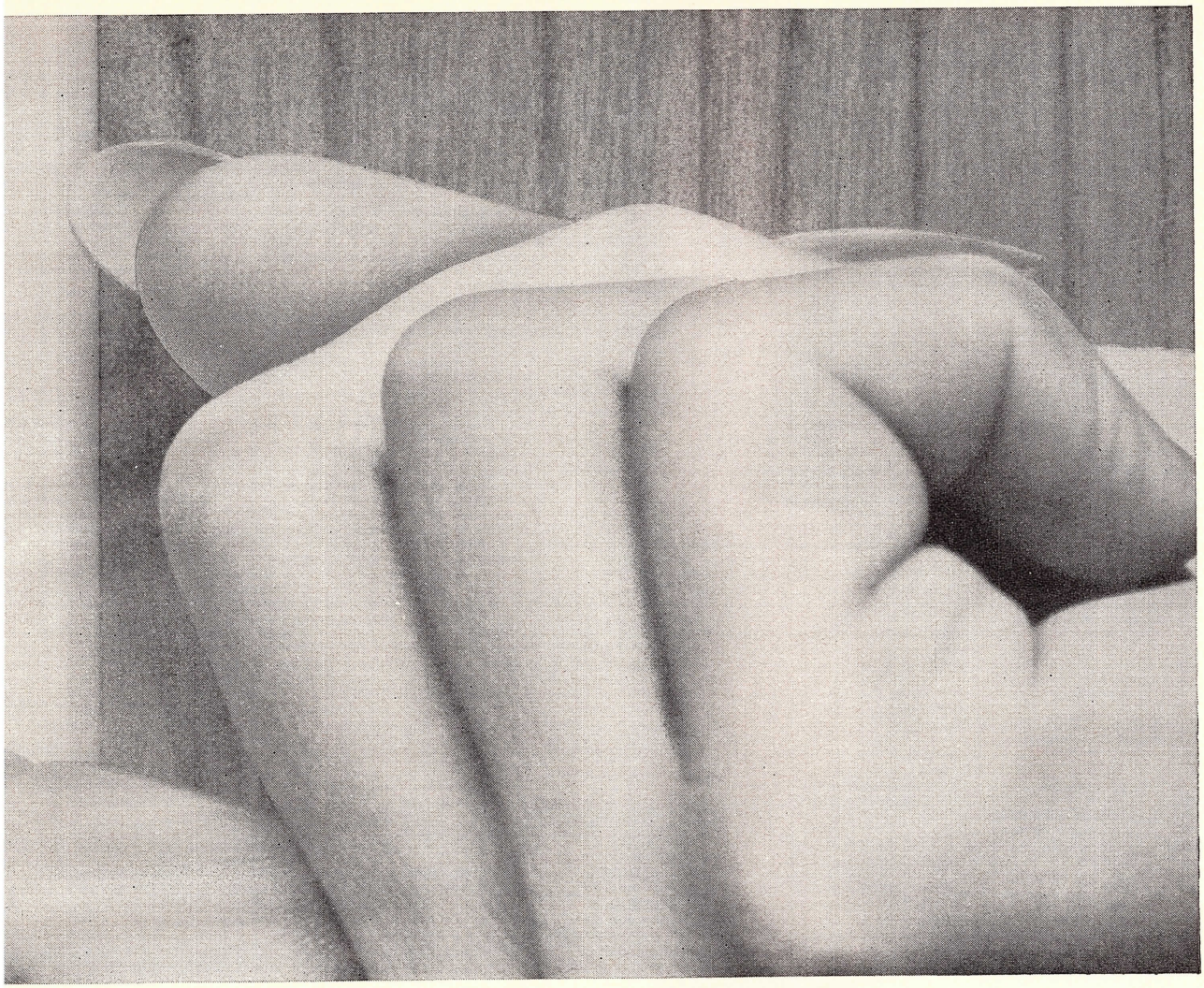
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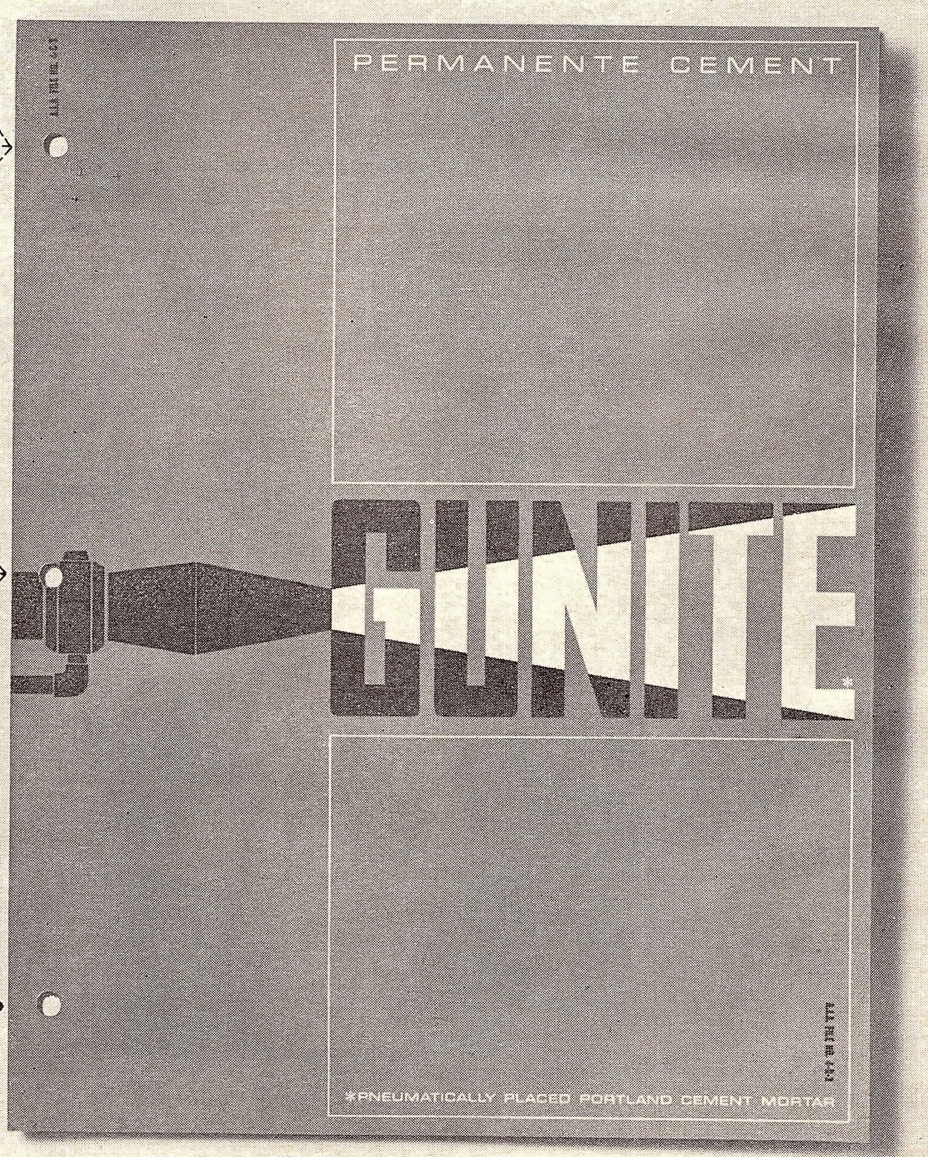
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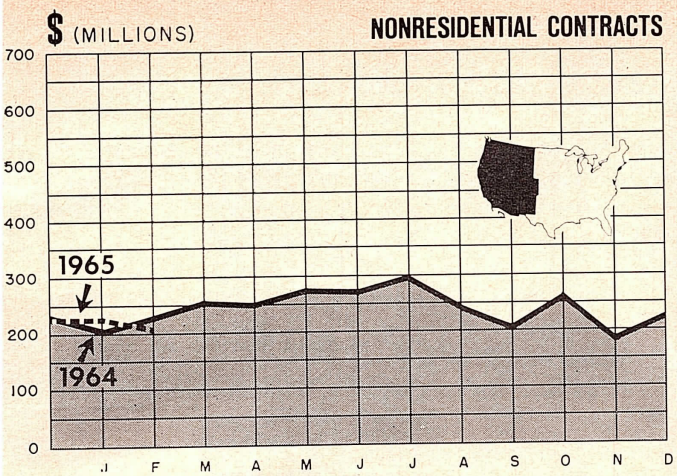
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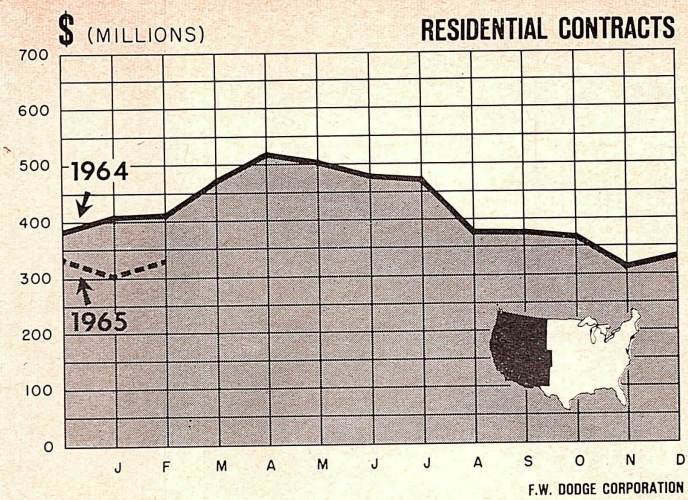
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the only HOLES in this report are right here







WESTERN CONSTRUCTION TRENDS

(For analysis of construction trends nationwide, see page 18)

Non-building construction, a major contributor to January's performance, provided nearly all of the muscle in February, too, as total contract construction in the 11 Western states, at $811 million, pushed a full 3 per cent over the year-ago amount. On a cumulative percentage basis, Western construction pulled abreast of the national figure for the first time in over a year. Although both figures are in the red by some 3 per cent, this is the closest Western contract value has come to breaking even since last July. February's performance may be an indication that Western construction, becalmed for several months, is again beginning to stir.

Paced by an $88 million electrical generating plant contract in Los Angeles County, and two $15 million contracts for highway tunnels, also in California, the Non-building category turned in a fat 43 per cent gain when compared with the first two months of 1964. The nation, reflecting the West's good fortune, registered a figure 5 per cent in the black for the same period.

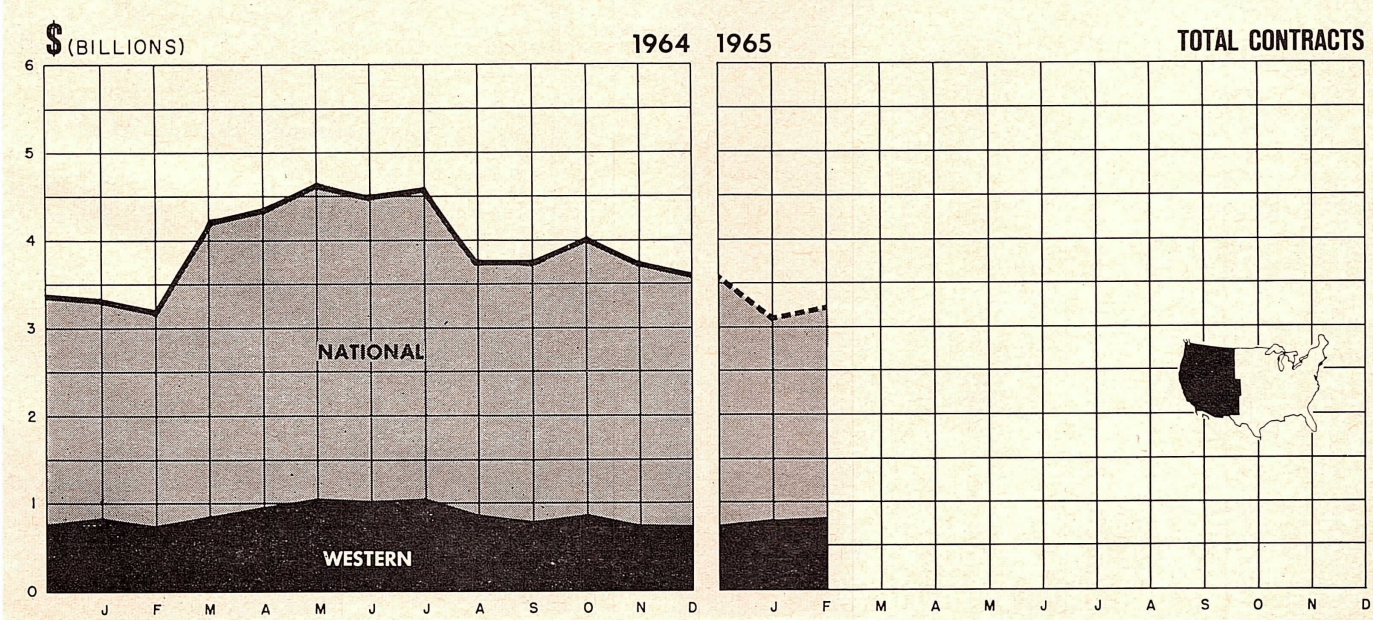
Office and bank building, which had been up substantially in January, and store construction, off heavily, traded places during February, but total commercial contract value suffered in the exchange. A figure of $69 million brought the cumulative tally from 5 per cent above last year's pace, to slightly less than 1 per cent ahead.

Manufacturing building, while still below last year's levels, was not down as sharply in February. A figure of $25 million was recorded, 3 per cent below 1964's achievement. In contrast, the national figure, at $177 million stood 5 per cent above the previous February.

Educational and science building and hospital construction were both down substantially, as was the social and recreational category. The combined effect more than outweighed the booming public building and religious building categories and was instrumental in dragging the nonresidential construction total down 11 per cent below last February's figure. On a two-month cumulative basis, however, total nonresidential construction in the West was just about even with last year's performance.

In spite of a booming hotel-motel-dormitory category, residential construction continued to run substantially below year-ago levels in both the West and the nation.

James E. Carlson,
Associate Economist
F. W. Dodge Company
A Division of McGraw-Hill, Inc.



Total contracts include residential, nonresidential and non-building contracts

Estimator's Guide: SAN FRANCISCO BAY AREA

The Estimator's Guide alternates monthly among four Western areas. The prices below are compiled from average quotations received by LeRoy Construction Services for commercial work of approximately $100,000-$250,000 total value. Except as otherwise noted, prices are for work installed including all labor, material, taxes, overhead and subcontractors' profit. Material prices include local delivery as noted, but no state or local taxes.

EXCAVATION

MACHINE WORK IN COMMON GROUND

Large basement	CY	.80-1.10
Small pits	CY	1.20-1.90
Trenches	CY	1.75-2.50

HAND WORK IN COMMON GROUND

Large pits & trenches	CY	8.00-12.00
Small pits & trimming	CY	12.00-16.00

Hard clay or shale, 2 times above rates
Shoring, bracing & disposal of water not included

SEWER PIPE MATERIALS

VITRIFIED

Standard 4"	LF	.33
Standard 6"	LF	.63
Standard 8"	LF	.90
Standard 12"	LF	1.94
Standard 24"	LF	7.89

CLAY DRAIN PIPE

Standard 6"	LF	.32
Standard 8"	LF	.45

Rate for 100 LF FOB Warehouse

CONCRETE & AGGREGATES

GRAVEL, all sizes	TON	3.75
TOP SAND	TON	4.00
CONCRETE MIX	TON	4.10
CRUSHED ROCK		
1/4" to 3/4"	TON	4.00
3/4" to 1 1/2"	TON	4.00
Lightweight Aggregate	c.y.	10.75
ROOFING GRAVEL	TON	4.10
SAND (#1 & 2)	TON	5.00
CEMENT		
Common, all brands (paper sacks)		
Small quantities	Per Sack	1.40
Large quantities	Per Bll	4.45
Atlas White	Per Sack	3.80
CONCRETE MIX		
6 sacks in 5-yd loads	Per Yd	15.65
Lightweight 105 #c.y.	Per Yd	21.25
CURING COMPOUND		
Clear, 5-gal drums	Per Gal	1.45

STEEL MATERIALS

SHEETS		
Hot rolled	LB	.11
Cold rolled	LB	.12
Galvanized	LB	.12
PLATE	LB	.11
STRIPS	LB	.13
STRUCTURAL SHAPES	LB	.115
BARS		
Hot rolled	LB	.11
Cold finished	LB	.15
Reinforcing	LB	.105
REINFORCING MESH		
6 x 6" #10 x #10	SF	.04
6 x 6" #6 x #6	SF	.07

2000# FOB Warehouse

STRUCTURAL STEEL

$340.00 and up per ton erected when out of mill.
$370.00 and up per ton erected when out of stock.

BRICK AND BLOCK

BRICKS		
Common 2 1/2 x 3 3/4 x 8 1/4"	M	59.00
Jumbo 3 1/2 x 3 x 11 1/2"	M	103.00
Roman Red 3 x 2 x 11 1/2"	M	84.00
Norman Red 3 x 2 1/2 x 11 1/2"	M	87.50
Norman Buff	M	116.00
Antique (used) Brick	M	69.50
Paving Brick	M	90.00
MANTEL FIRE BRICK		
2 1/2 x 9 1/2 x 4 1/2"	M	142.00
GLAZED STRUCTURAL UNITS		
2 x 6 x 12" Furring	SF	.60
4 x 6 x 12"—1 side	SF	.91
6 x 6 x 12"—1 side	SF	1.32
4 x 6 x 12"—2 sides	SF	1.00
Add For Color	SF	.25

CONCRETE BLOCKS

4 x 8 x 16"	EA	.23
6 x 8 x 16"	EA	.29
8 x 8 x 16"	EA	.34
12 x 8 x 16"	EA	.51
Add for color	EA	.02

AGGREGATE

Haydite or Basalite

All sizes in bulk	CY	6.80

BRICKWORK AND MASONRY

COMMON BRICKWORK, reinforced		
8" walls	SF	2.80
12" walls	SF	4.00
SELECT COMMON, reinforced		
8" walls	SF	3.05
12" walls	SF	4.25
CONCRETE BLOCK, reinforced		
6" walls	SF	1.70
8" walls	SF	1.80
12" walls	SF	2.30
BRICK VENEER		
4" Select Common	SF	1.50
4" Roman	SF	2.10
4" Norman	SF	2.10
3" Jumbo	SF	1.30

BUILDING PAPERS AND FELTS

BUILDING PAPER	
1 ply per 1,000-ft	4.20
2 ply per 1,000-ft	6.40
3 ply per 1,000-ft	8.75
Sisalkraft, reinforced, 500-ft roll	9.50
SHEATHING PAPERS	
Asphalt sheathing, 15-lb 324 SF Roll	2.17
30-lb 216 SF Roll	2.93
Dampcourse, 216-ft roll	3.30
FELT PAPERS	
Deadening felt, 3/4-lb, 50 s.y. Roll	3.00
1-lb, 50 s.y. Roll	3.50
ROOFING PAPERS	
Standard grade, smooth surface	
432 SF rolls	
Light, 45-lb	2.20
Medium, 55-lb	2.63
Heavy, 65-lb	2.85
Mineral surfaced 216 SF Roll	3.50

LUMBER

DOUGLAS FIR			
Construction	2x4-2x10	MBM	96.00-104.00
Standard	2x4-2x10	MBM	93.00- 98.00
Utility	2x4-2x10	MBM	75.00- 82.00
Economy	2x4-2x10	MBM	57.00- 68.00
Clear, air dried		MBM	198.00-231.00
Clear, kiln dried		MBM	231.00-264.00
REDWOOD			
Foundation grade		MBM	135.00-145.00
Construction Heart		MBM	120.00-130.00
A Grade		MBM	230.00-270.00
Clear Heart		MBM	260.00-290.00

PLYWOOD (DOUGLAS FIR)	**MSF**
1/4" AB	90.00
1/4" AD	70.00
1/4" Ext. waterproof	77.00
3/8" AB	105.00
3/8" AD	95.00
3/8" CD	70.00
1/2" AB	140.00
1/2" AD	120.00
1/2" CD	91.00
5/8" AB	156.00
5/8" AD	136.00
5/8" CD	102.00
3/4" AB	178.00
3/4" AD	158.00
3/4" CD	135.00
5/8" Plyform	170.00

SHINGLES	**Square**
Cedar #1	17.00-19.00
Cedar #2	14.00-17.00

SHAKES

Cedar		
1/2" to 3/4" butt	Square	19.00-22.00
3/4" to 1 1/4" butt	Square	21.00-24.00
Redwood		
3/4" to 1 1/4" butt	Square	21.00-24.00

INSULATION AND WALL BOARD

	FOB Warehouse Per M S
FIBER GLASS INSULATION—foil backed	
1 1/2" thick	40.7
2 1/4" thick	48.7
3 5/8" full thick	58.7
SOFTBOARDS—wood fiber	
1/2" thick	60.0
3/4" thick	128.5
ALUMINUM INSULATION	
35# Kraft paper with alum. foil	
1 side only	24 0
2 sides	30 0
HARDBOARDS—wood fiber	
1/8" thick, sheathing	58.0
3/16" thick, sheathing	71.0
1/4" thick, sheathing	85.0
1/8" thick, tempered	80.0
3/16" thick, tempered	105.0
1/4" thick, tempered	130.0
CEMENT ASBESTOS BOARD	
1/8" flat sheets	145.0
3/16" flat sheets	190.0
1/4" flat sheets	255.0

ROUGH CARPENTRY

FRAMING		
Floors	BM	.24-.29
Walls	BM	.30-.35
Ceilings	BM	.32-.40
Roofs	BM	.27-.32
Furring & blocking	BM	.40-.60

Bolted framing, add 50%

SHEATHING		
1 x 8" straight	BM	.22-.28
1 x 8" diagonal	BM	.25-.30
5/16" plyscord	SF	.19-.24
5/8" plywood CC	SF	.27-.32
SIDING		
1 x 8" bevel	BM	.45-.50
1 x 4" V-rustic	BM	.50-.60

Bolted framing, add 50%

DAMPPROOFING & WATERPROOFING

MEMBRANE		
1 layer 50-lb felt	SQ	10.00
4 layers dampcourse	SQ	15.00
Hot coat walls	SQ	9.00
Tricosal added to concrete	CY	1.00
Anti-Hydro added to concrete	CY	1.50

ROOFING

STANDARD TAR & GRAVEL	**Per Sq**
4 ply	17.00-22.00
5 ply	19.50-25.00
White gravel finish—Add	2.00- 4.00
Asph. compo. shingles	20.00-24.00
Cedar shingles	24.00-28.00
Cedar shakes	27.00-33.00
Concrete tiles	45.00-65.00
Clay tiles	50.00-80.00

SHEET METAL

ROOF FLASHINGS		
18 ga galv steel	SF	.80-1.20
22 ga galv steel	SF	.70-1.10
26 ga galv steel	SF	.60-1.00
18 ga aluminum	SF	1.25-1.75
22 ga aluminum	SF	1.05-1.20
26 ga aluminum	SF	.95-1.10
24 oz copper	SF	2.40-2.80
20 oz copper	SF	2.10-2.50
16 oz copper	SF	1.80-2.30
26 ga galv. steel		
4" OG gutter	LF	1.10-1.35
Mitres and Drops	EA	2.00-4.00
22 ga galv. louvers	SF	3.00-4.00
20 oz copper louvers	SF	3.50-5.00

CHIMNEYS, PATENT

	FOB Warehouse	
6"	LF	1.45
8"	LF	2.05
10"	LF	2.85
12"	LF	3.50

Rates for 10-50 LF

MILLWORK

All Prices FOB Mill

D.F., clear, air dried S4S	MBM	220.00-250.00
D.F., kiln dried S4S	MBM	225.00-275.00

DOOR FRAMES & TRIM
Residential entrance ..... 17.00 & up
Interior room entrance ..... 9.00 & up
DOORS
1⅜" hollow core ..... 8.00 & up
1¾" solid core ..... 19.00 & up
1⅜" Birch hollow core ..... 10.00 & up
1¾" Birch solid core ..... 22.00 & up
WOOD SASH
D/H in pairs (2 lts) ..... SF .55
Casement (1 lt) ..... SF .65
WOOD CABINETS
¾" D.F. plywood with ¼" plywood backs:
Wall hung ..... LF 10.00-15.00
Counter 12.00-17.00
Birch or maple, add 25%

FINISH CARPENTRY

EXTERIOR TRIM
Fascia and molds ..... BM .48-.55
ENTRANCE DOORS & FRAMES
Single ..... 60.00 & up
Double ..... 100.00 & up
INTERIOR DOORS & FRAMES
Singles ..... 36.00 & up
Pocket sliding ..... 46.00 & up
Closet sliding (Pr.) ..... 52.00 & up
WINDOWS
D/H sash & frames ..... SF 2.00 & up
Casement sash & frames ..... SF 2.30 & up
SHELVING
1 x 12 S4S ..... BM .30-.50
¾" plywood ..... SF .40-.60
STAIRS
Oak steps D.F. risers
Under 36" wide ..... Riser 14.00
Under 60" wide ..... Riser 19.00
Newels posts and rail extra
WOOD CASES & CABINETS
D.F. wall hung ..... LF 15.50-20.60
D.F. counters ..... LF 18.50-25.75

HARDWOOD FLOORING MATERIALS

OAK 5/16" x 2" STRIP
Clear ..... M 195.00
Select ..... M 190.00
#1 Common ..... M 180.00
OAK 5/16" RANDOM PLANK
Select & better ..... M 285.00
#1 Common ..... M 235.00
OAK 25/32" x 2¼" T&G
Select ..... M 260.00
#1 Common ..... M 250.00
MAPLE 25/32" x 2¼" T&G
#1 Grade ..... M 305.00
#2 Grade ..... M 280.00
#3 Grade ..... M 230.00
NAILS—1" FLOOR BRADS ..... KEG 18.00

HARDWOOD FLOORS

Select Oak
Filled, sanded, stained and varnished
5/16" x 2¼" strip ..... SF .50- .55
5/16" random plant ..... SF .60- .65
½" x 2" strip ..... SF .65- .75
25/32" x 2¼" T&G ..... SF .75- .90
Maple
2nd grade & better
Filled, sanded, stained & varnished
25/32" x 2½" T&G ..... SF .85-1.00
Wax finish, add ..... SF .10
Dark stains, add ..... SF .05

RESILIENT FLOORING MATERIALS

Linoleum, standard gage ..... SY 2.65-2.85
Linoleum, battleship ..... SY 2.95-3.10
⅛" Asphalt tile, dark ..... SF .10- .11
⅛" Asphalt tile, light ..... SF .14- .16
⅛" Rubber tile ..... SF .40- .44
.080 Vinyl tile ..... SF .55- .65
.080 Vinyl asbestos tile ..... SF .18- .19
⅛" Vinyl tile ..... SF .78- .82
4" Base, black ..... LF .10- .11
4" Base, colored ..... LF .11- .15
Rubber treads ..... LF 1.60-2.30
Linoleum paste ..... GAL .75- .90

FLOORS

⅛" Asphalt tile, dark colors ..... SF .23- .28
⅛" Asphalt tile, light colors ..... SF .25- .30
⅛" Rubber tile ..... SF .60- .70
.080 Vinyl asbestos tile ..... SF .35- .40
.080 Vinyl tile ..... SF .75- .85
Linoleum, standard gage ..... SY 3.75-4.25
Linoleum, battleship ..... SY 5.25-5.75
4" Rubber base ..... LF 25.- .35
Rubber stair treads ..... LF 2.25-2.75

LATH & PLASTER MATERIALS

METAL LATH
Diamond 3.4# copper-bearing ..... SY .49
Ribbed 3.4# copper-bearing ..... SY .53
ROCK LATH
⅜" thick ..... SY .36
METAL
¾" Standard channel ..... LF .038
1½" Standard channel ..... LF .053
3¼" Steel studs ..... LF .088
4" Steel studs ..... LF .098
Stud shoes ..... EA .03
PLASTER
Browning, hardwall ..... Sack 1.58
Finish, hardwall ..... Sack 1.75
Stucco ..... Sack 2.50

LATH & PLASTER WORK

CHANNEL FURRING
Suspended ceilings ..... SY 2.80-3.05
Walls ..... SY 2.90-3.25
METAL STUD PARTITIONS
3¼" studs ..... SY 3.00-3.35
4" studs ..... SY 3.20-3.50
Over 10-0 high, add ..... SY .25- .35
3.4# METAL LATH & PLASTER
Ceilings ..... SY 4.20-4.95
Walls ..... SY 4.25-5.05
Keene's cement finish, add ..... SY .45- .65
ROCK LATH PLASTER
Ceilings ..... SY 3.20-3.70
Walls ..... SY 3.30-3.80
WIRE MESH & ⅞" STUCCO
Walls ..... SY 4.60-5.80
STUCCO ON CONCRETE
Walls ..... SY 3.30-3.80
Metal accessories ..... LF .25- .55

DRYWALL

METAL STUD PARTITIONS
1⅝" studs ..... .27
2½" studs ..... .30
3⅝" studs ..... .36
DRYWALL
½" Nailed on ..... .12
½" Screwed on ..... .14
⅝" Nailed on ..... .15
⅝" Screwed on ..... .18
Tape joints ..... .05

TILE MATERIALS

FOB Warehouse
CERAMIC TILE
4¼" x 4¼" glazed ..... SF .72
4¼" x 4¼" hard glazed ..... SF .74
Random, unglazed ..... SF .72
6" x 2" cap ..... EA .19
6" cove base ..... EA .31
¼" round bead ..... LF .18
QUARRY TILE
6 x 6 x ½" red ..... SF .51
6 x 6 x ¾" red ..... SF .53
9 x 9 x ¾" red ..... SF .65
6 x 6" cove base ..... EA .23

TILE & TERRAZZO WORK

CERAMIC TILE, stock colors
Floors ..... SF 1.90-2.30
Walls ..... SF 2.00-2.50
Cove base ..... LF 1.10-1.35
QUARRY TILE
6" x 6" x ½" floors ..... SF 1.80-2.20
9" x 9" x ¾" floors ..... SF 1.95-2.40
TERRAZZO
Terrazzo floors ..... SF 2.15-2.65
Cond. Terrazzo floors ..... SF 2.30-2.80
Precast treads & risers ..... LF 3.60-4.60
Precast landing slabs ..... SF 3.00-4.10

WINDOWS

STEEL SASH
Under 10 SF ..... SF 2.50 & up
Under 15 SF ..... SF 2.00 & up
Under 20 SF ..... SF 1.50 & up
Under 30 SF ..... SF 1.00 & up
ALUMINUM SASH
Under 10 SF ..... SF 2.75 & up
Under 15 SF ..... SF 2.25 & up
Under 20 SF ..... SF 1.75 & up
Under 30 SF ..... SF 1.25 & up
Above rates are for standard sections and stock sizes, FOB Warehouse

GLASS—CUT TO SIZE

FOB Warehouse
SSB Clear, aver 4 SF ..... SF .17
DSB Clear, aver 7 SF ..... SF .28
Crystal, aver 16 SF ..... SF .35
¼" Polished plate, aver 50 SF ..... SF .90
⅛" Obscure, aver 7 SF ..... SF .35
⅛" Ribbed, aver 7 SF ..... SF .45
⅛" Rough, aver 7 SF ..... SF .45
¼" Wire plate, clear, aver 40 SF ..... SF 1.90
¼" Wire plate, rough, aver 40 SF ..... SF .90
⅛" Heat absorbing, aver 7 SF ..... SF .90
¼" Tempered plate, aver 40 SF ..... SF 3.60
½" Tempered plate, aver 40 SF ..... SF 6.40
GLASS BLOCKS
6" ..... .70
8" 1.15
12" 3.10

GLASS & GLAZING

SSB Clear ..... SF .55
DSB Clear ..... SF .80
Crystal ..... SF .95
¼" Plate ..... SF 2.00
⅛" Obscure ..... SF .80
⅛" Heat absorbing ..... SF 1.35
¼" Tempered plate ..... SF 4.75
½" Tempered plate ..... SF 9.00
¼" Wire plate, clear ..... SF 2.90
¼" Wire plate, rough ..... SF 1.50

PAINT MATERIALS

All prices FOB Warehouse
Thinners 5-100 gal ..... Gal .63
Turpentine 5-100 gal ..... Gal 1.59
Linseed oil, raw ..... Gal. 2.36
Linseed oil, boiled ..... Gal 2.43
Primer-sealer ..... Gal 3.12
Enamel undercoaters ..... Gal 5.54
Enamel ..... Gal 5.58
White lead in oil ..... LB .36
Red lead in oil ..... LB .36
Litherage ..... LB .32

PAINTING

EXTERIOR
Stucco wash, 1 coat ..... SY .48
2 coats ..... SY .80
Lead & Oil, 2 coats ..... SY 1.10
3 coats ..... SY 1.60
INTERIOR
Primer-sealer ..... SY .45
Wall paint, 1 coat ..... SY .54
2 coats ..... SY .98
Enamel, 1 coat ..... SY .65
2 coats ..... SY 1.14
Doors & trim ..... EA 14.00
Sash & trim ..... EA 16.00
Base & molds ..... LF .18
Old work, add 15-30%

VENETIAN BLINDS

RESIDENTIAL ..... SF .45 & up
COMMERCIAL ..... SF .55 & up
VERTICAL ..... SF 1.25 & up

PLUMBING

Lavatories ..... EA 200.00-250.00
Toilets ..... EA 250.00-310.00
Bath tubs ..... EA 270.00-370.00
Stall shower ..... EA 150.00-200.00
Sinks ..... EA 180.00-240.00
Laundry trays ..... EA 120.00-180.00
Water heaters ..... EA 115.00-350.00
Prices based on average residential and commercial work. Special fixtures and excessive piping not included.

HEATING

Furnaces, Gas Fired, Av Job
FLOOR
25,000 BTU 120.00-140.00
35,000 BTU 128.00-150.00
45,000 BTU 145.00-165.00
Automatic control, add 27.00- 37.00
DUAL WALL
25,000 BTU 136.00-160.00
35,000 BTU 147.00-170.00
50,000 BTU 174.00-195.00
Automatic control, add 43.00- 55.00
GRAVITY
75,000 BTU 420.00-510.00
85,000 BTU 450.00-530.00
95,000 BTU 500.00-650.00
Forced air furnace, add 85.00-150.00
Automatic control, add 20.00- 30.00
HEAT REGISTERS
Outlet 13.00- 28.00

ELECTRIC WIRING

Per Outlet
Knob & Tube ..... EA 11.00
Armor ..... EA 18.00
Conduit ..... EA 23.00
110-V Circuit ..... EA 29.00
220-V Circuit ..... EA 108.00

ELEVATORS & ESCALATORS

Prices vary according to capacity, speed and type.
Consult elevator companies.
Slow speed apartment house elevator including doors and trim about $3,500 per floor.

THE FLOORING CONFLICT

Wanted—something imaginative.

A floor with style. Preferably with the beauty of a natural material. Something with esthetic texture. Something versatile enough for applications like terrazzo, general purpose, underlayment, heavy duty, non-slip, and industrial granolithic.

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Available—the material for making an imaginative, practical floor.

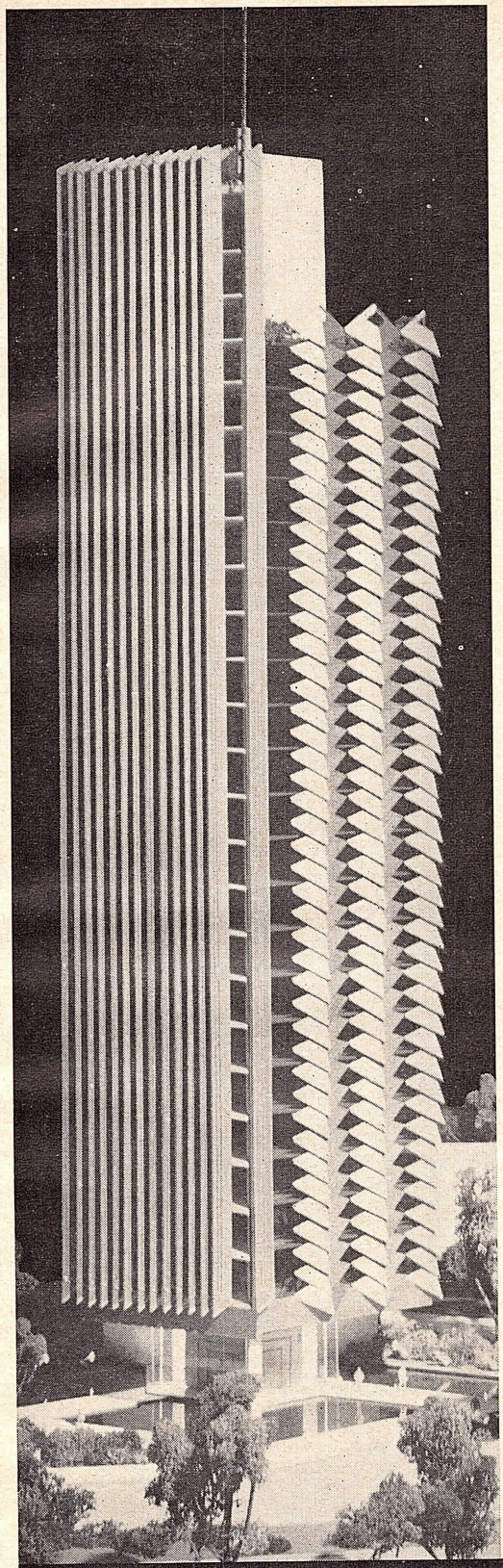
Write Department 1135S for information about magnesium oxychloride cement flooring made with FMC OXYMAG—the only flooring of its kind that consistently meets ASA specifications. An effective solution for problem floor areas.

See our brochure in Sweet's Architectural Catalog File

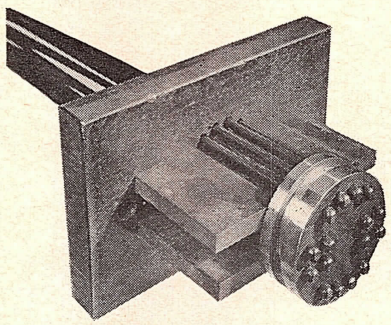
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INORGANIC CHEMICALS DIVISION
633 THIRD AVENUE, NEW YORK, N. Y. 10017

fmc CORPORATION

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FLOORS CANTILEVER 26 FEET FROM HEXAGON CENTER CORE WALL ▭ for column free perimeter in 20-story tower



THIS IS POSITIVE END ANCHORAGE

THE TWENTY-STORY Citizens Bank Tower in Oklahoma City required a column free outside perimeter; to achieve this the floors were cantilevered an average of 26′ from the 18″ thick hexagon center core wall. A total of six different structural systems in three different materials were investigated and cost estimates were obtained for each system. Post-tensioned prestressed concrete using the Prescon System proved most effective and least expensive.

TAPERED FLOOR SLABS are 24″ deep at the core wall and 6″ deep at the outer perimeter. Prescon tendons are placed in a radial fashion and are conveniently stressed from the outer perimeter.

A THREE-LEVEL, 400 car, parking garage adjoins the Tower. It is a post-tensioned prestressed concrete 9″ flat slab with 14′ cantilevers and 35′ interior spans. Tenants walk under cover from the parking area to the Tower.

Your files should contain the latest brochures and Prescon News. Write for your copies.

Architects:	Bozalis, Dickinson, Roloff
Engineer:	Robert L. Dillon
Contractor:	Lippert Brothers, Inc.
Expected Completion:	December, 1965

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WESTERN TEAMS VIE FOR ART CENTER

Seven teams of architects—five from the West—have been named finalists in the competition for design of the University of California's new Art Center. They are Sanford Pollack, Berkeley, with Eugene Lew and Wilber Weber; Mario J. Ciampi, San Francisco, with Paul W. Reiter, Richard L. Jorasch and Ronald E. Wagner; Alfred Wastlhuber, San Francisco; John W. McGough, with Bruce M. Walker, of Walker and McGough Architects, Spokane; Marvin Hatami, Denver; Louis J. Johnson, Chicago, with Arthur S. Takeuchi; and Earl Swensson, of Swensson and Kott Architects, with Alan Cooper, design associate, Nashville.

In addition, three Western teams received honorable mention: Jerry R. McCarthy, El Cerrito, with Douglas C. Barker; Norman W. Patterson, of Stone, Marraccini and Patterson, San Francisco; and Donald Barthelme, Houston.

In the second phase the finalists will compete for the $25,000 prize offered by the University. Runners-up in this phase will each receive $5000. Announcement of the winner will be made on July 17.

Jurors were Lawrence B. Anderson, head of the department of architecture at Massachusetts Institute of Technology, Chairman; Gardner Dailey, San Francisco architect; Ralph Rapson, dean of the School of Architecture, University of Minnesota; and two Regents of the University of California, Mrs. Dorothy B. Chandler of Los Angeles and Donald H. McLaughlin of Berkeley. Eldridge T. Spencer, F.A.I.A. is professional advisor.

The Center is to be built on the south side of Bancroft Way, the present south boundary of the main campus area. It will contain seven art galleries, a theater workshop, conference facilities and studios for music and art.

The budget for the building is $2,825,000, all of which will come from non-tax-sources. The center is scheduled to open in 1968 when the University celebrates its centennial.

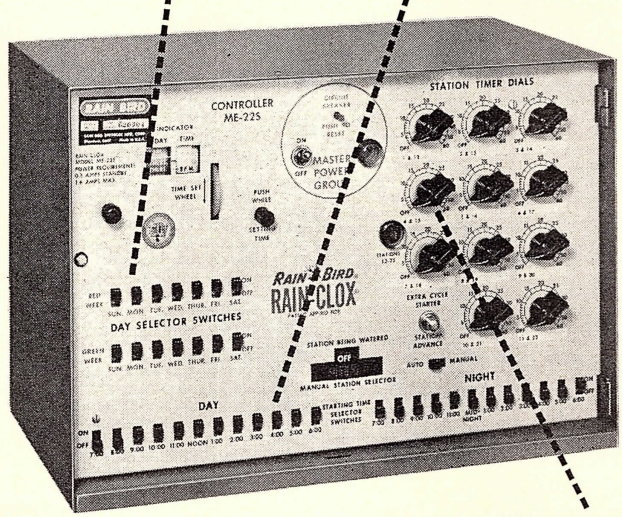
$12 MILLION MUSEUM OPENS IN LOS ANGELES

The just-opened Los Angeles County Art Museum in Hancock Park is Los Angeles' first major museum and the largest built in the U.S. since World War II. The $12 million building—actually three pavilions joined by a great central plaza—incorporates galleries for permanent collections, for temporary and travelling exhibitions, and special facilities such as a research library, children's art gallery, 600-seat auditorium and cafeteria.

From the Wilshire Boulevard side—actually, the main elevation—the group of buildings appears to float in a great pool of water. On either side of the entrance plaza are jets of water; in the center is a circular fountain with a sculpture by Norbert Kricke; another fountain contains an Alexander Calder work. The plaza's several levels are open air galleries for sculpture and for landscaped areas of special design (such as the Renaissance Garden near the principal

continued on page 32-16

Next Monday at 4 pm



it will rain on the west lawn for exactly 20 minutes

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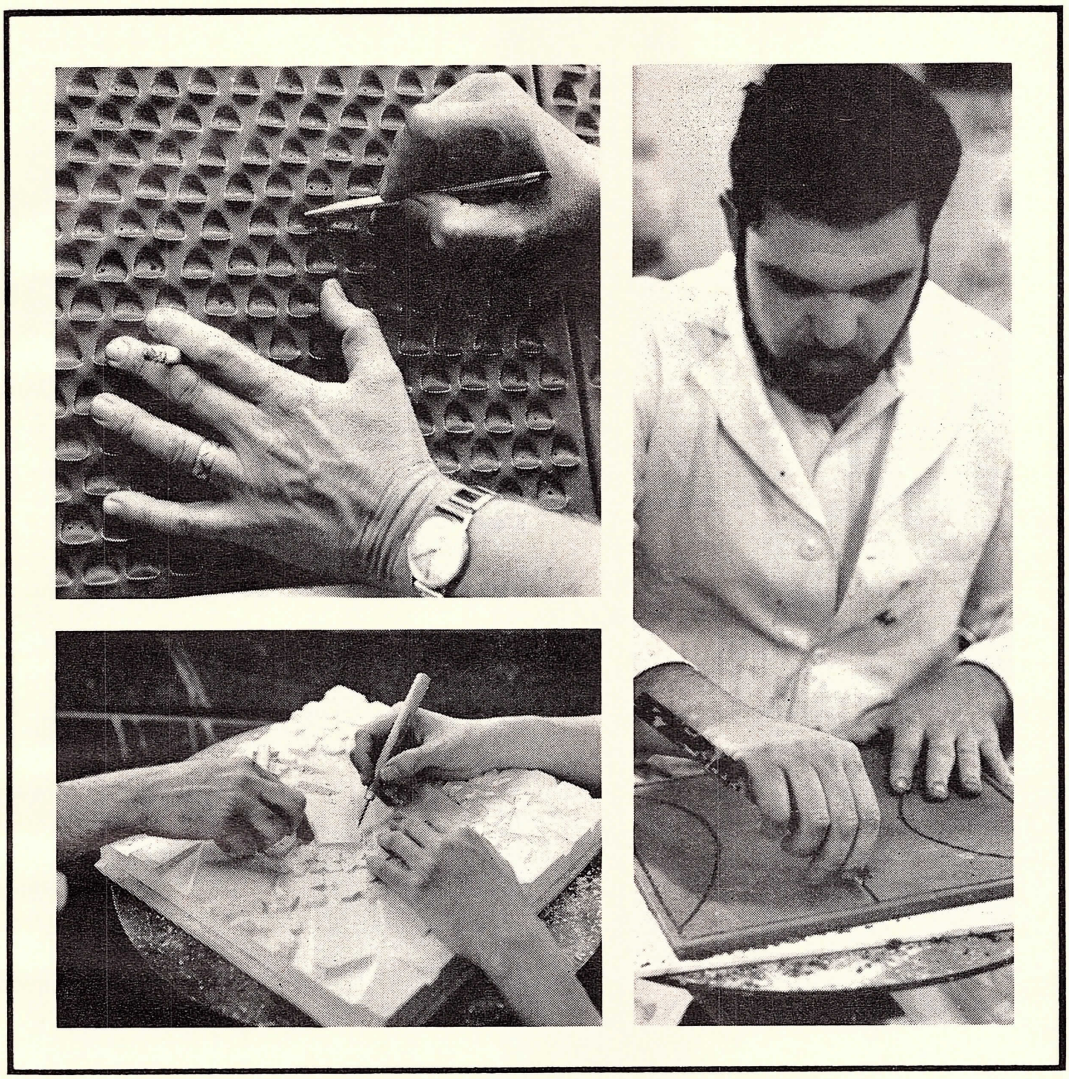
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continued from page 32-14
pavilion, the Ahmanson Gallery.)

There are no doorways between the Ahmanson's galleries. Display walls (velvet-hung on the plaza level, monkscloth-covered on the four upper floors) form the divisions between spaces. The Lytton Gallery for temporary and travelling exhibitions is a three-story building, with the main display space on the plaza level and offices, board room and work areas below, and two galleries, a restorer's studio and a sculpture garden above. The third pavilion is the Leo S. Bing Center containing the library, auditorium, cafeteria, kitchen and children's art center.

William L. Pereira and Associates James Langenheim, partner in charge, were architects. S. B. Barnes & Associates were structural engineers; Ralph E. Phillips, Inc., mechanical engineers; Frumhoff and Cohen, electrical engineers. Del Webb was general contractor.

SANTA CRUZ CAMPUS TO OPEN MINUS DORMS

Even though the buildings of its first residential college will not be complete until the fall of 1966, the University of California plans to open its new campus at Santa Cruz on schedule in the fall of this year. Students will live in 48 trailers on the campus (or in apartments or motels vacant during the winter and spring seasons—Santa Cruz is a coastal resort community particularly popular in summer).

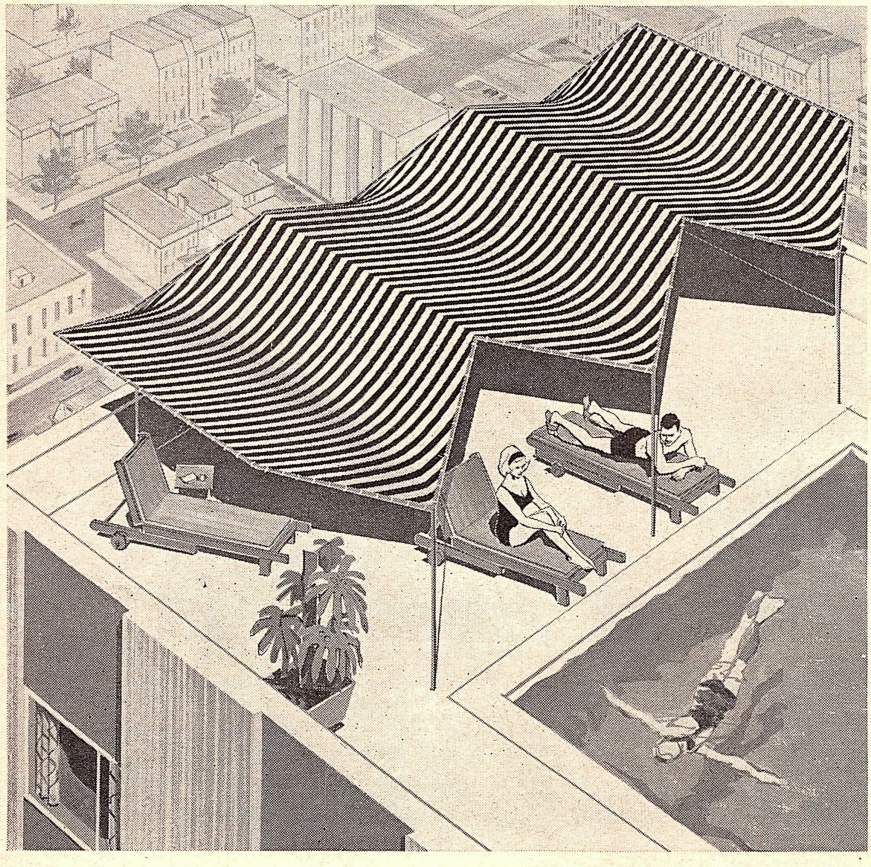
An initial enrollment of 600 students is expected, 400 of whom will reside at the college. Students will live 8 to a trailer, each of which will be provided with bath facilities, heat, light, etc.

However, some buildings will be completed in time for the opening of the campus. The central service building, for which Ernest J. Kump Associates are architects, will provide administrative offices and space for a pro-tem library. The Natural Sciences building, for which Anshen and Allen are architects, will double as a classroom as well as laboratory building. The central heating building (Spencer, Lee and Busse, architects) was completed some time ago. The Field House, under construction now, is scheduled to be finished in the fall of this year. Callister, Payne & Rosse are the architects.

When it is completed, Cowell College, the first residential college will house all resident members of the college, providing them with rooms, dining room, library and class rooms. Nonresident students will be assigned to the college as regular members of the community.

Santa Cruz is the University of California's reply to the often-expressed view that university campuses are too large. The concept in force at Santa Cruz will be to "build big while seeming small."

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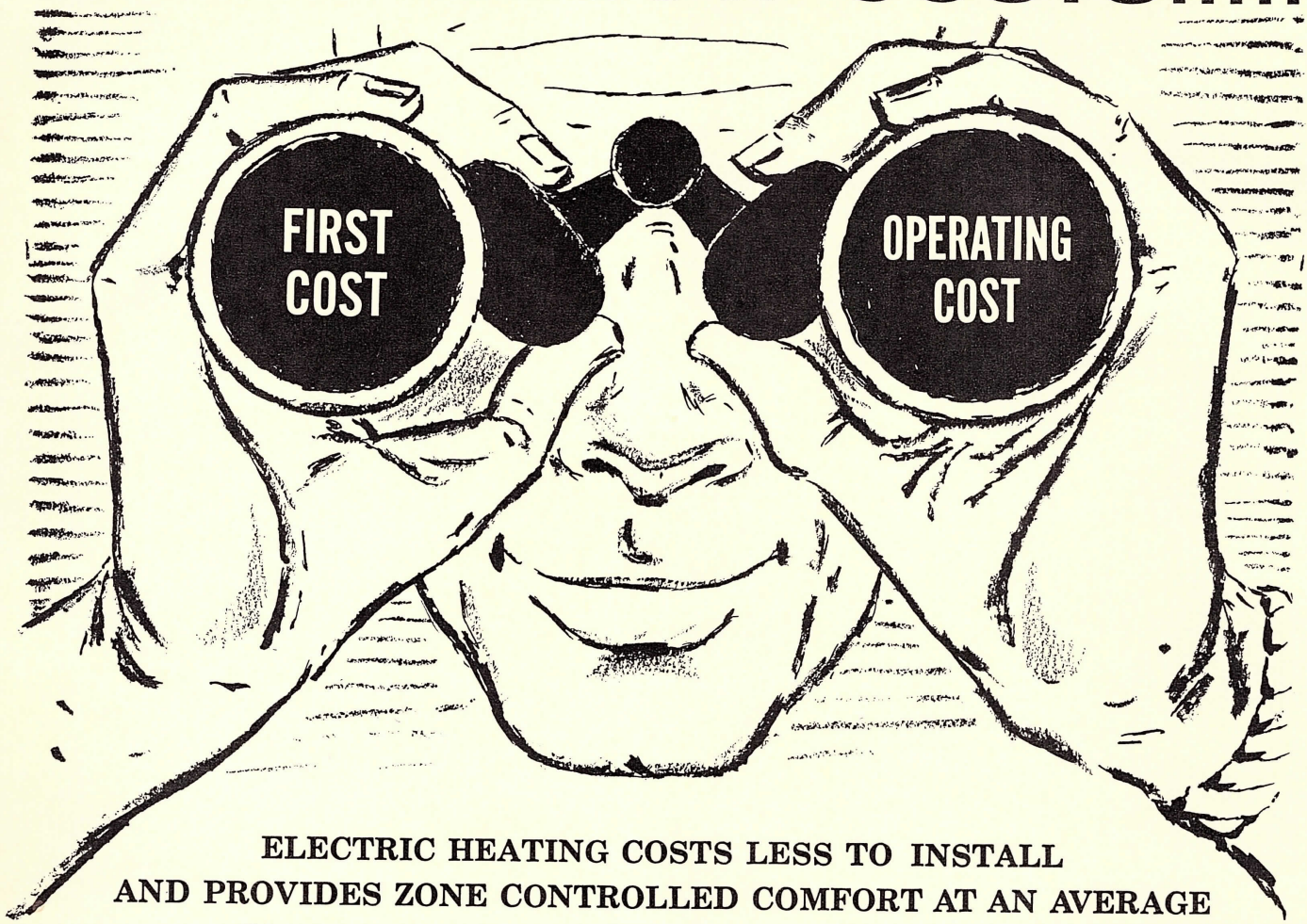
low from Pabco you can meet almost all your wall requirements or commercial and multi-unit residential projects. Pabco's line of all systems includes one and two-hour fire ratings, with sound atings from 33 to 55 decibels. Select from conventional drywall onstruction, or Pabcoat plaster veneer; each system is designed or fast, simple erection without costly prefabricating on the job. Consult with your Pabco Technical Representative about the right proven Pabco system for your next project. He's completely quipped to give you details, specifications, cost data and any other ssistance you may require. Pabco Gypsum Division, Fibreboard Paper Products Corporation, 475 Brannan Street, San Francisco.

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Installation:
275 Wyman St. Bldg.,
Waltham, Mass.
Architect:
Anderson, Beckwith
and Haible,
Boston.
Floor shown:
VP-394 with
red feature strip.

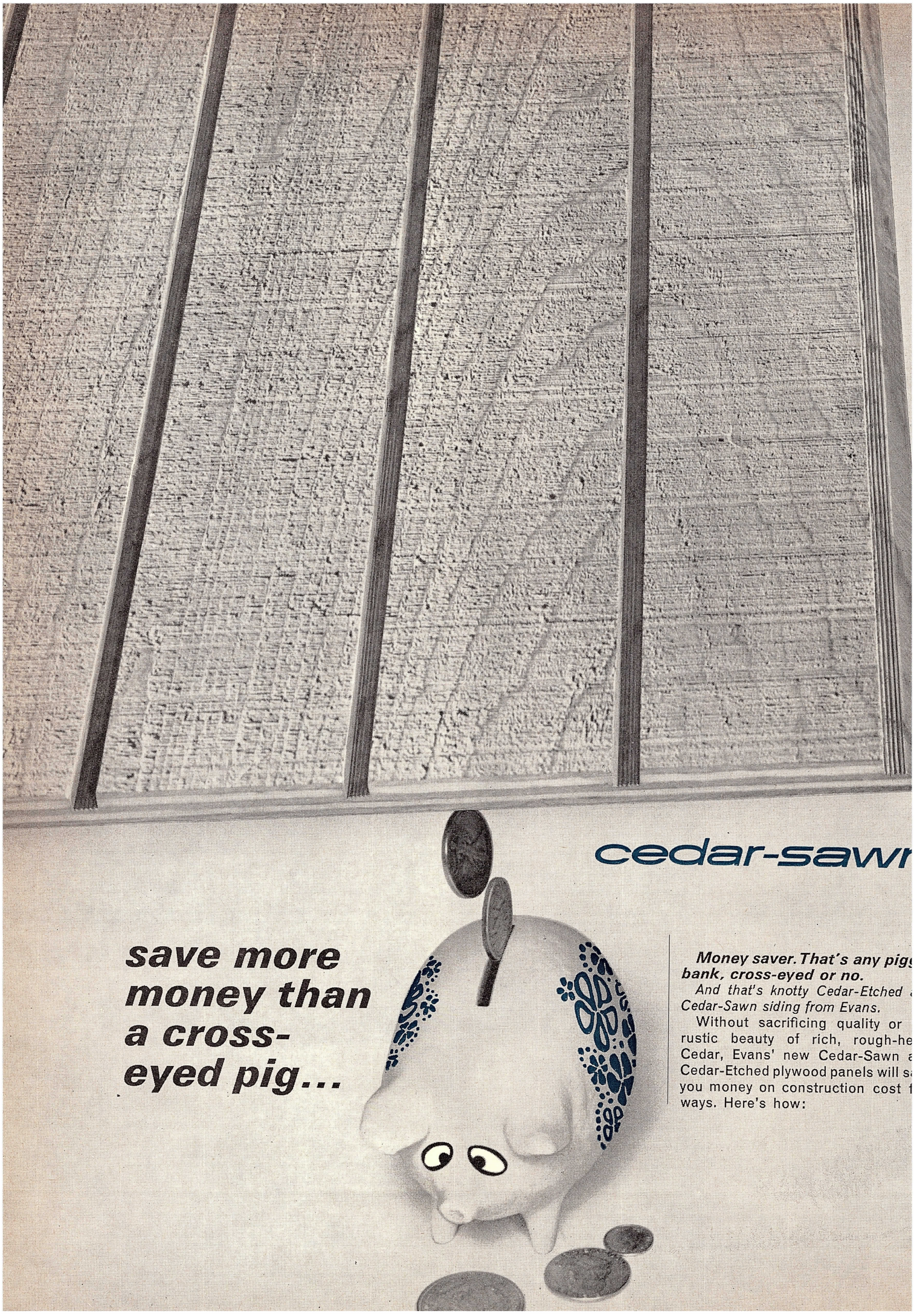


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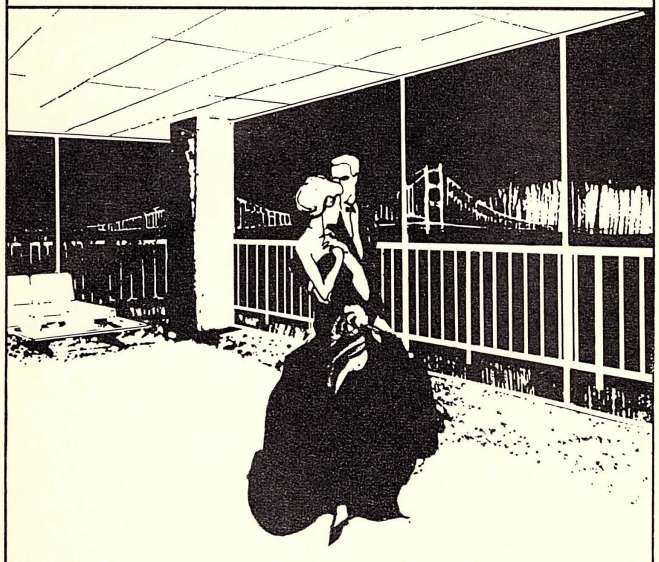
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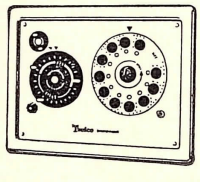
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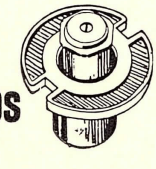
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Turfco

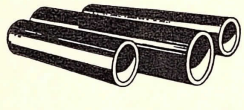
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CALENDAR OF WESTERN EVENTS

May 13-June 13: "Pacific Heritage," paintings and sculpture by contemporary Pacific Coast artists. M. H. de Young Memorial Museum, Golden Gate Park, San Francisco

May 15: Conference on Computer Graphics, sponsored by Department of Architecture, University of California, Berkeley. 9 to 12 a.m., Wheeler Hall. Berkeley

May 19: "The Image of the American Landscape," lecture by Dr. Hans Huth, Physics Lecture Hall, Stanford University, Palo Alto, California

May 24-26: Ninth annual convention, Construction Specifications Institute, El Cortez Hotel, San Diego, California

June 3-5: Parking Area Improvement Contractors Association Conference, Doric Motor Hotel, Los Angeles

June 10-20: Los Angeles Home Show combined with National Institute of Interior Designers Decorators' Show, Los Angeles Memorial Sports Arena, Los Angeles

June 21-25: "The New World," International Design Conference, Aspen, Colorado

July 7-24: Silt Pile Number 5, Paolo Soleri Studios, Scottsdale, Arizona. For students. Further information from Professor James W. Elmore, College of Architecture, Arizona

WESTERN SECTION

Index To Advertising

Manufacturers' Pre-Filed Catalogs of the firms listed below are available in the 1965 Sweet's Catalog Files as follows:
a Architectural File (green)
ic Industrial Construction (blue)
lc Light Construction (yellow)
Page numbers of manufacturers' advertising elsewhere in this issue shown in italics

A-LC	Azrock Floor Products	32-23
	Druwhit Metal Products Co.	32-26
A-LC	Evans Products Co.	32-24-25
A	FMC Corp., Inorganic Chemicals Div.	32-12
	Glen Raven Cotton Mills, Inc.	32-16
A	International Pipe & Ceramics Corp.	32-15
	Kaiser Cement & Gypsum Corp.	32-8
	Northern California Electrical Bureau	32-22
	Pabco Gypsum Division	32-20-21
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	Smoot-Holman Co.	32-17-18
	Southern California Edison Co.	32-6-7
	So. Calif. & So. Counties Gas Cos.	32-19
	Turfco Industries	32-26
A-LC	Uvalde Rock Asphalt Co.	32-23

Western advertising offices; LOS ANGELES, Robert L. Clark, 1125 West 6th Street; SAN FRANCISCO, Tom Tredwell, 255 California Street.

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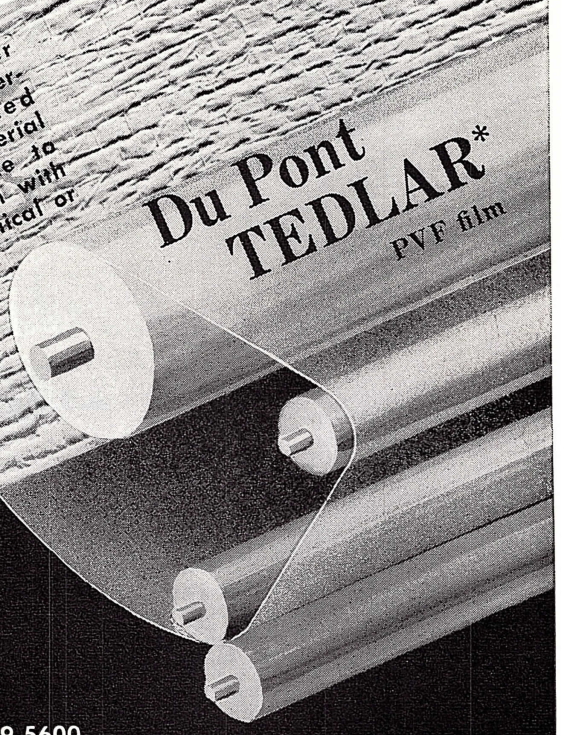
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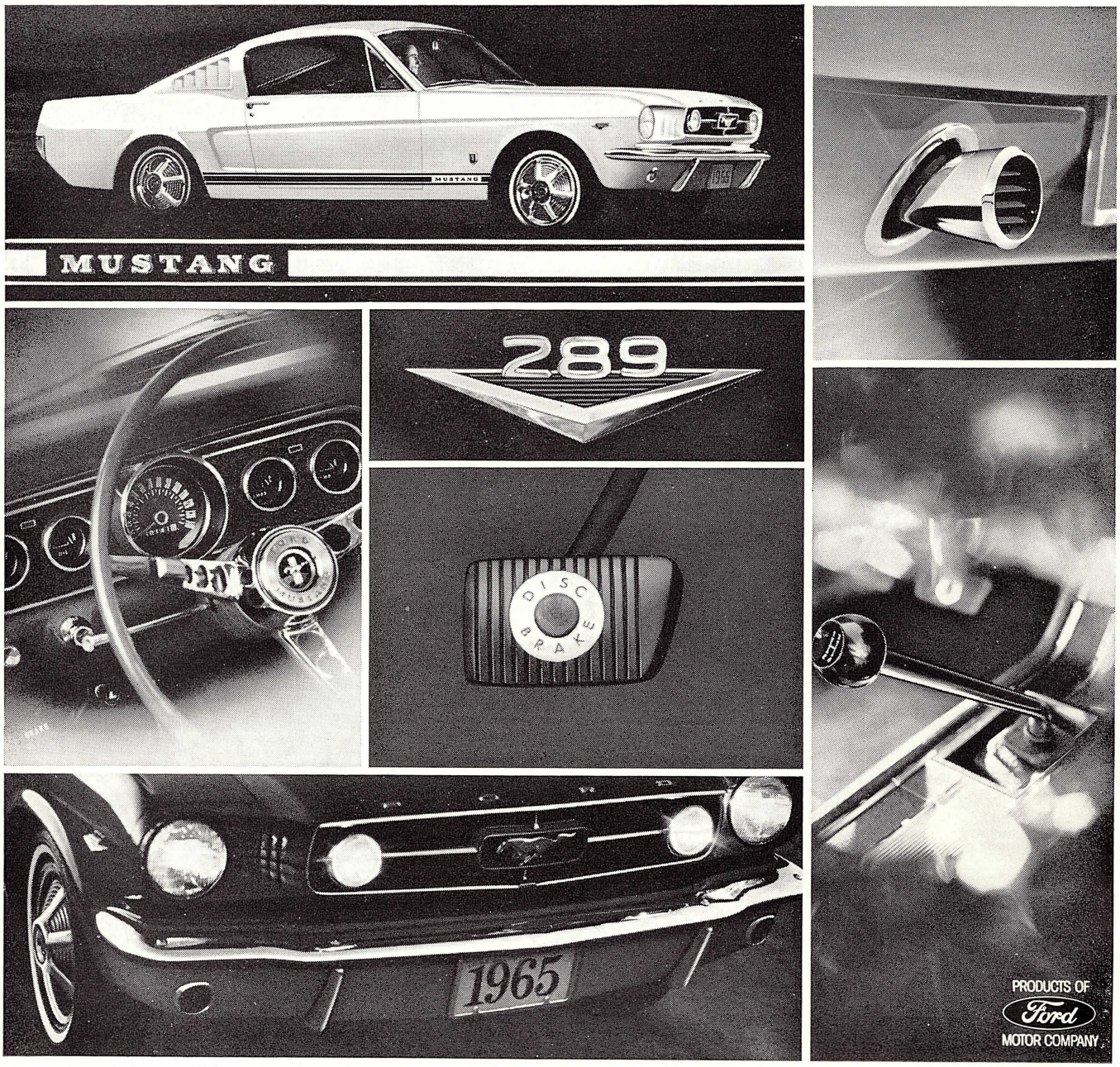
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MUSTANG

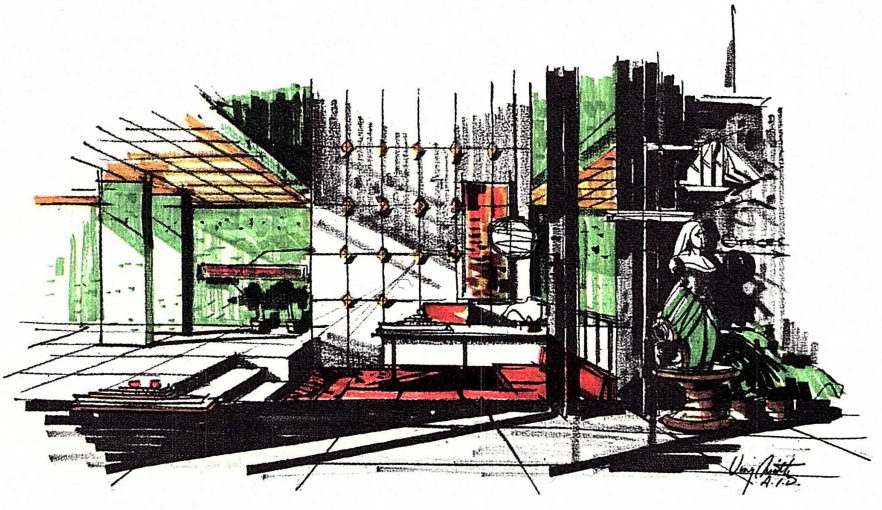
Unique Ford GT stripe—badge of America's greatest Total Performance cars!

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These three Colorvein patterns inspired this design.
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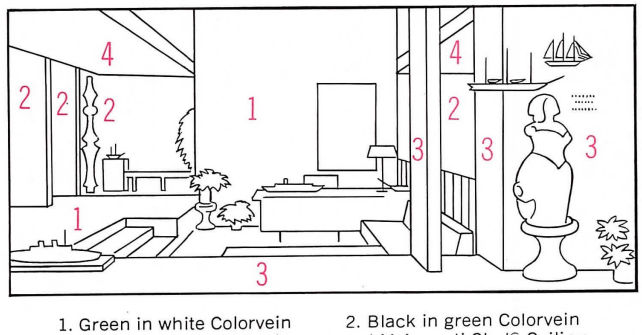
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Colorvein is handled and erected like marble o granite. This unique masonry product is a stone-lik mixture of synthetic calcium aluminum silicate binde reinforced with finely dispersed asbestos fibers an

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Colorvein is available in six color combinations. The pattern is a random arrangement of colors so there is an interesting variation in marbling from sheet to sheet. In the picture above are green in black, green in white, black in green. Shown on the next page are brown in white, white in black, and black in white. All samples on front and back pages are shown full scale.

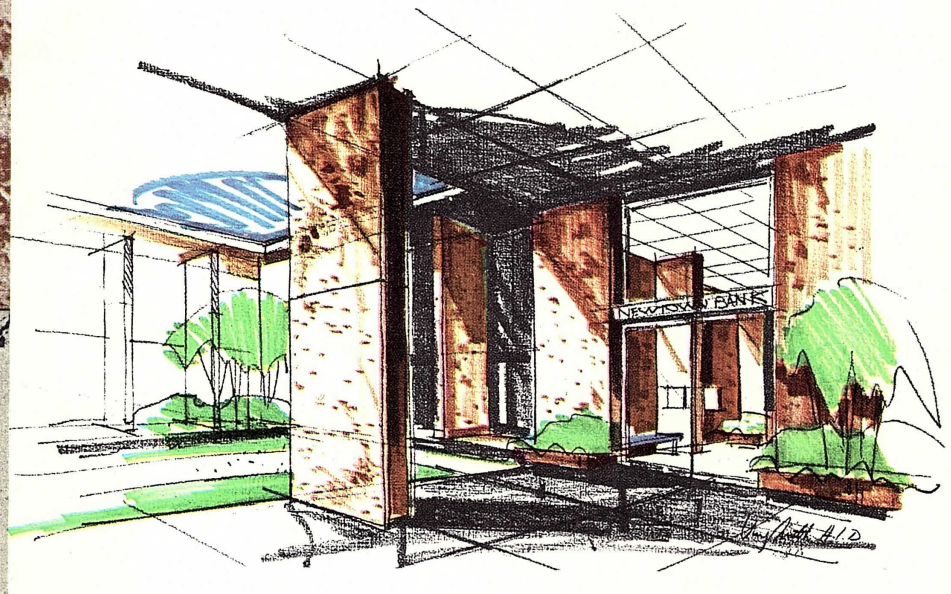


1. Green in white Colorvein
2. Black in green Colorvein
3. Green in black Colorvein
4. J-M Acousti-Clad® Ceiling

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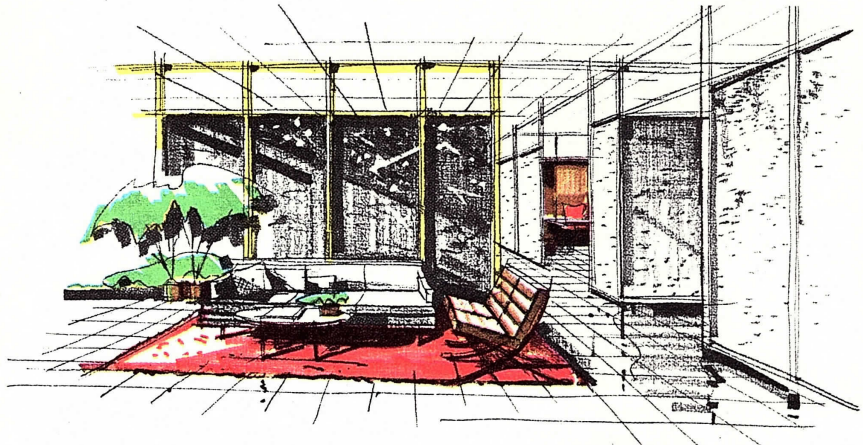
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This Month's Books

REVIEWS

Glenn H. Beyer, Housing and Society . . . 100

G. E. Kidder Smith, The New Churches of Europe . . . 50

Frederic J. Osborn and Arnold Whittick, The New Towns . . . 50

John W. Reps, The Making of Urban America . . . 100

BOOKS RECEIVED . . . 101

Garden Cities for Today?

THE NEW TOWNS. *By Frederic J. Osborn and Arnold Whittick. McGraw-Hill Book Co., 330 West 42nd St., New York, N.Y. 10036. 376 pp., illus., $12.50.*

A review by Alan Raphael

The concept of the Garden City is one which has been too little explored in this country. It is worthy of far greater attention than it has received.

In this most interesting volume, the authors have traced the history of the Garden City idea from the time its creator, Sir Ebenezer Howard, proposed it, in 1898, to the present.

His thesis can be stated as follows: It is impossible for people to live a full, happy, healthy life in the crowded, filthy slums of large cities. Cities are being choked to death by the numbers that crowd them in search of employment. At the same time, the countryside is dying from its population drain as employment possibilities there diminish. All of these factors can be mitigated, or even halted, by the establishment in the countryside of small cities with a population of 30,000 to 60,000. There people can be given decent houses with gardens (which surveys show is the desire of 90 to 95 per cent of British people) at a reasonable walking distance from their work. The cities can be thereby relieved of some of their congested population. And industry which needs labor can thereby be brought to areas in which the local population needs employment.

The average city-dweller can frame plenty of objections to this statement of seeming Utopia; the authors, however, seem to have a good answer to any derogatory comment. Even to the objection that seems the soundest: namely, in our society, how would it be possible to build a huge enterprise, requiring an enormous capital expenditure, which, by its nature, almost requires a government of benevolent socialism to conceive, much less carry through? Yet the first two Garden Cities, Letchworth and Welwyn, were built in 1903 and 1919 by private corporations formed for the purpose. They faltered financially somewhat during the thirties, yet reorganization kept them growing until they were taken over by the British government under the New Towns Act of the forties. (And in this country, it was private enterprise that in the twenties financed the Radburn of Clarence Stein and Henry Wright.)

Although the very idea of halting city growth might appear revolutionary to city fathers, who have been accustomed to regard the increase of population and industry in their city as indicative of health, rather than disease, they would do well to consider it. New York City, with its horrible slums, high crime rate, extremely high housing occupancy rate, and poor living conditions, might do far better financially, and in every other way, to consider the New Town solution instead of building slum clearance projects which seem to be almost universally condemned after they are built—architecturally, sociologically, from the concept of city planning, and from the viewpoint of the tenants. Our few experiments in new town building, and England's and other countries' successes along these lines, deserve further emulation, or at least thought and consideration.

The criticism that can most justly be made of the English New Towns is architectural. The authors call them "architecturally undistinguished." This is far too mild. Pictures show they are filled, with few exceptions, with the kind of buildings few architects would care to put their name to. Letchworth and Welwyn can be somewhat excepted from this, largely due to the landscaping which time has provided. Here the best of the architecture could be justly described as undistinguished; otherwise it is wretched. However, this has no bearing upon the idea as a whole, and this idea is well worthy of study today.

Alan Raphael is a practicing architect in East Cleveland and an instructor in architecture at the newly-formed Cuyahoga Community College.

Church Architecture

THE NEW CHURCHES OF EUROPE. *By G. E. Kidder Smith, F.A.I.A. Holt, Rinehart and Winston, 383 Madison Ave., New York, N.Y. 10017, 291 pp., illus., $17.50.*

G. E. Kidder Smith's new book presents 60 postwar churches in Europe selected by the architect-author-photographer for their stimulating design and use of materials and their significant contribution in broaden-

continued on page 63



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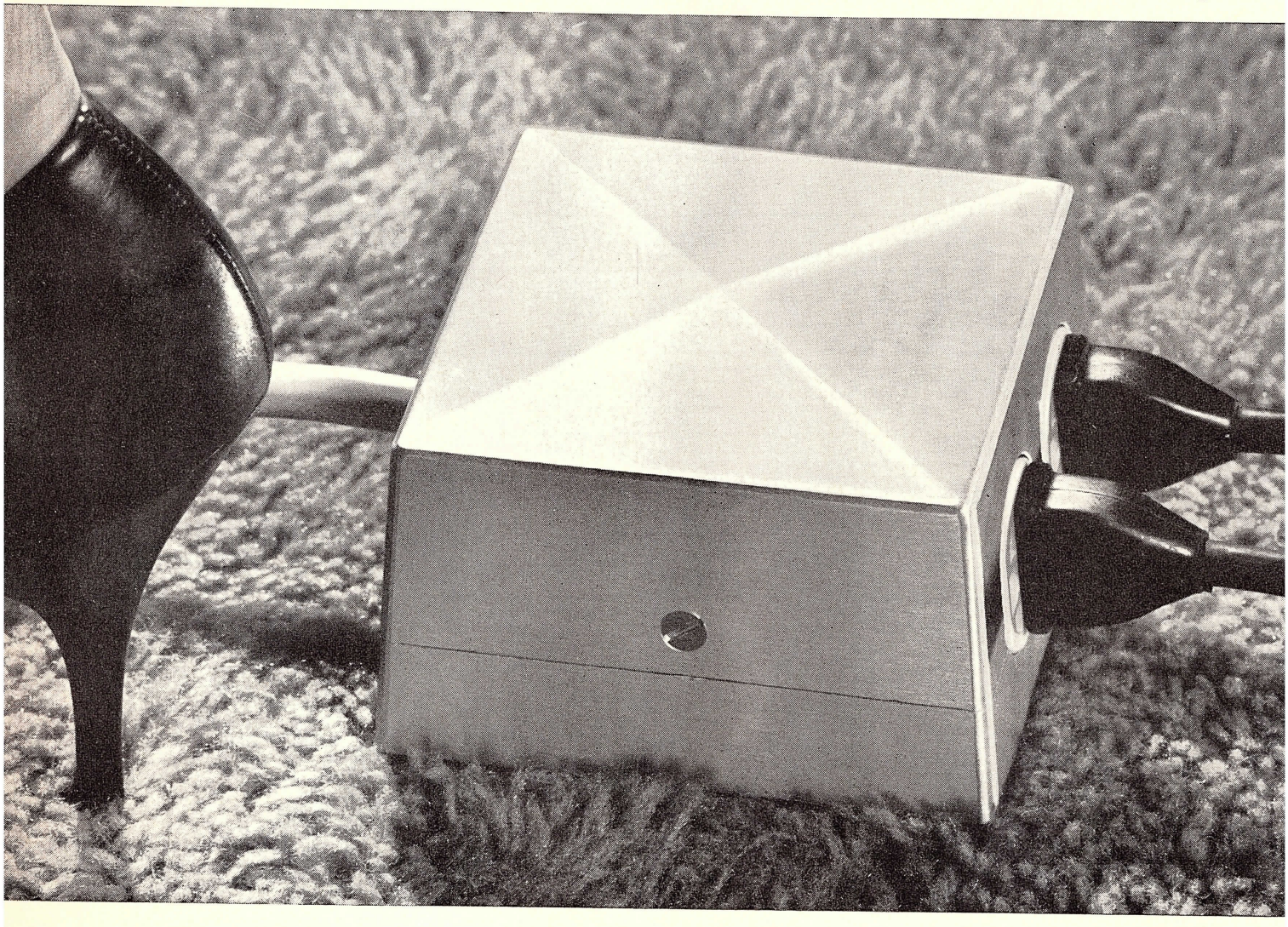
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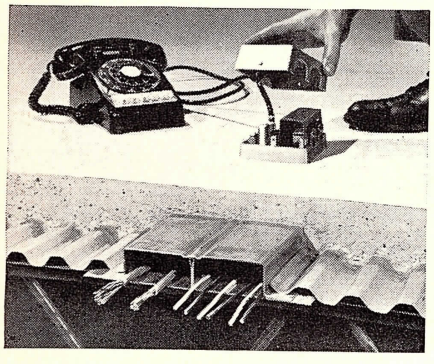
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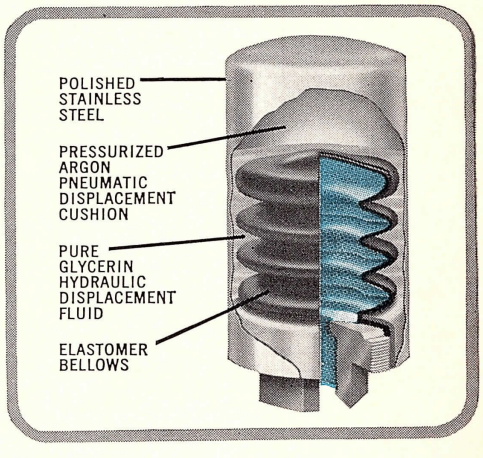


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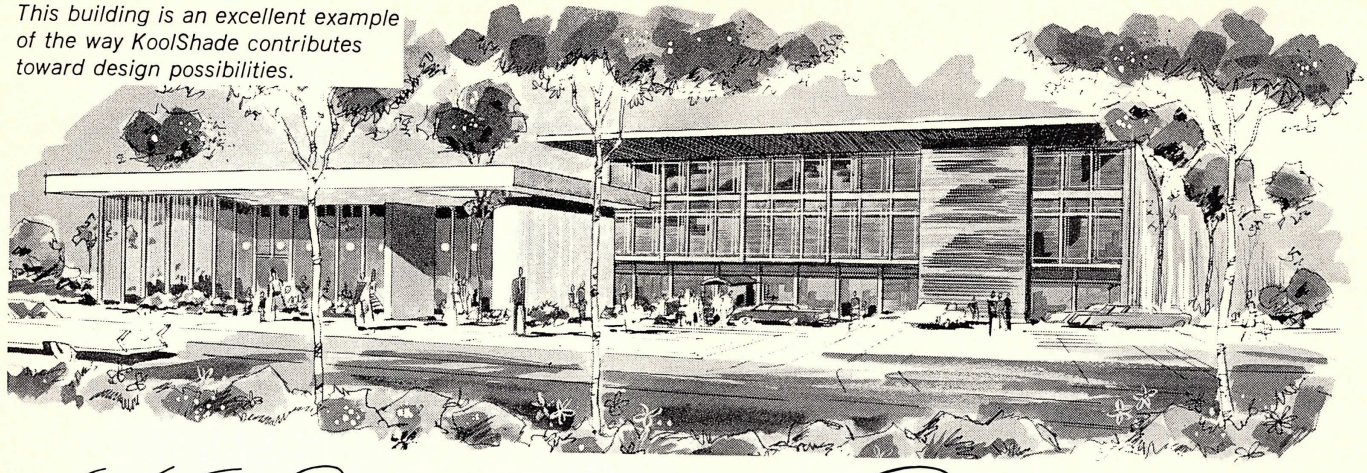
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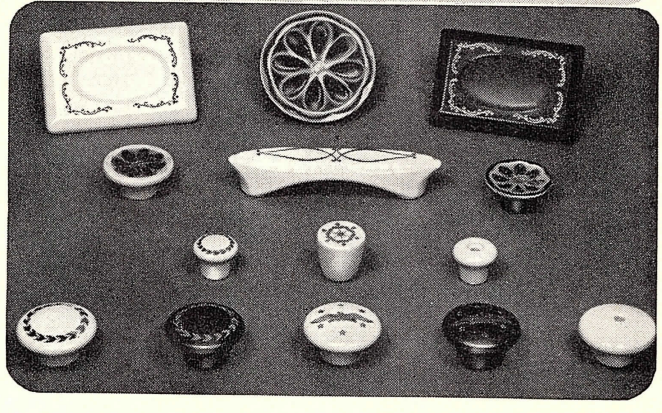
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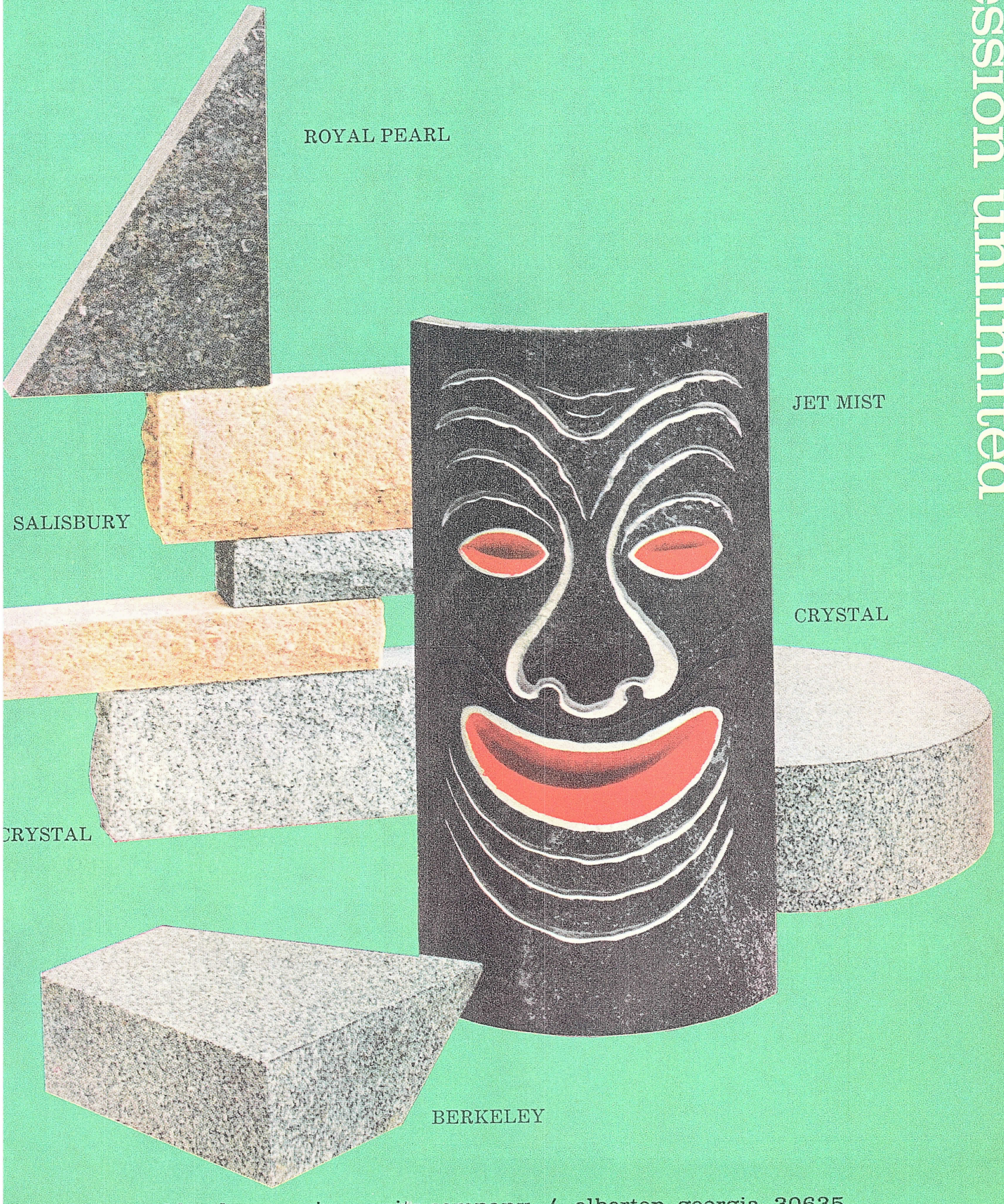
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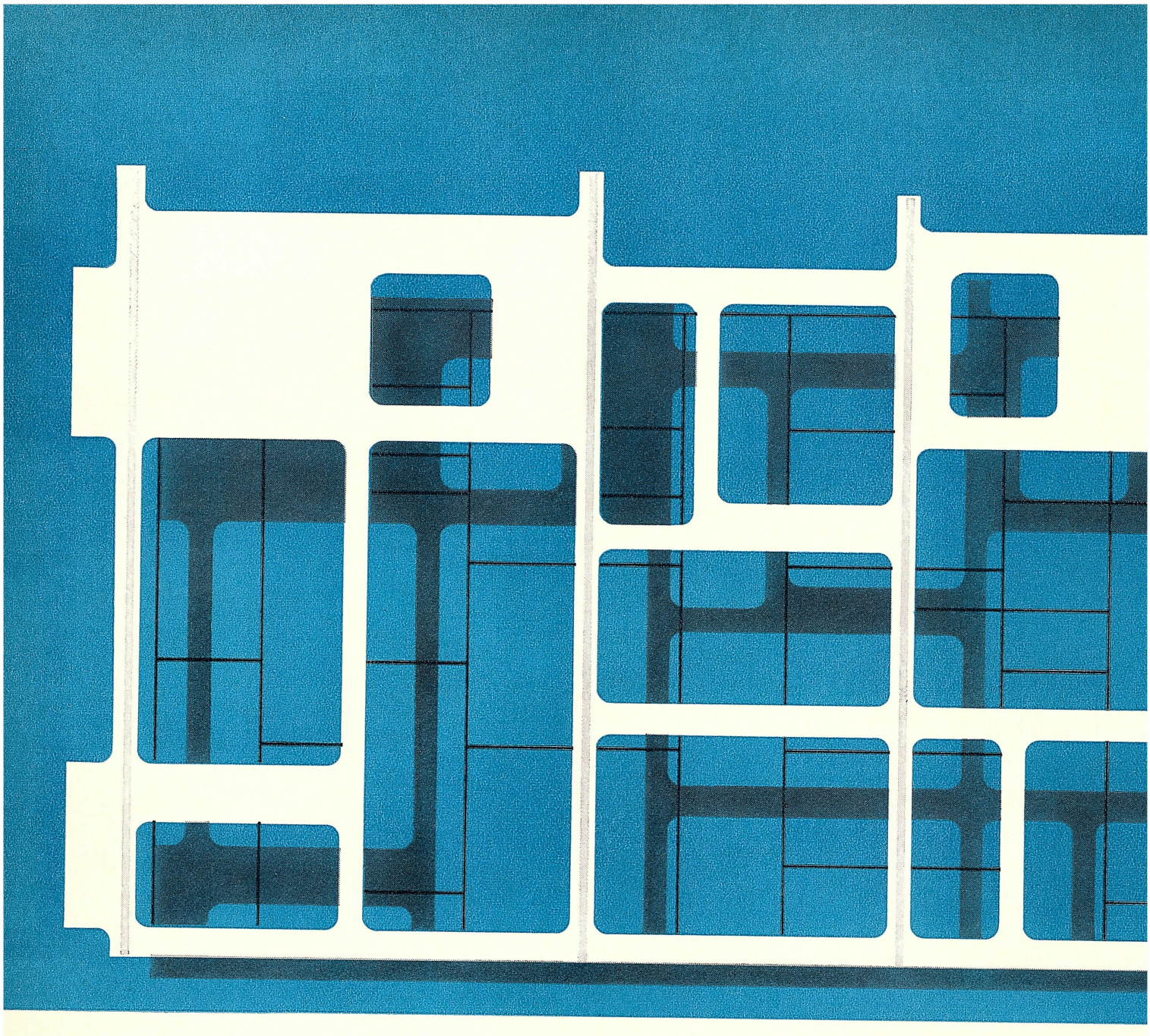
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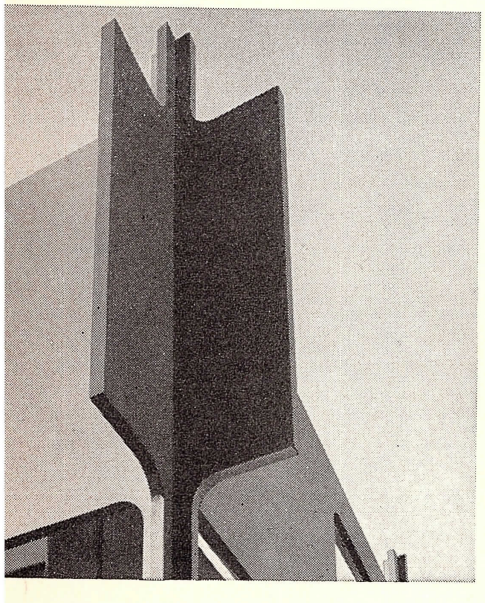
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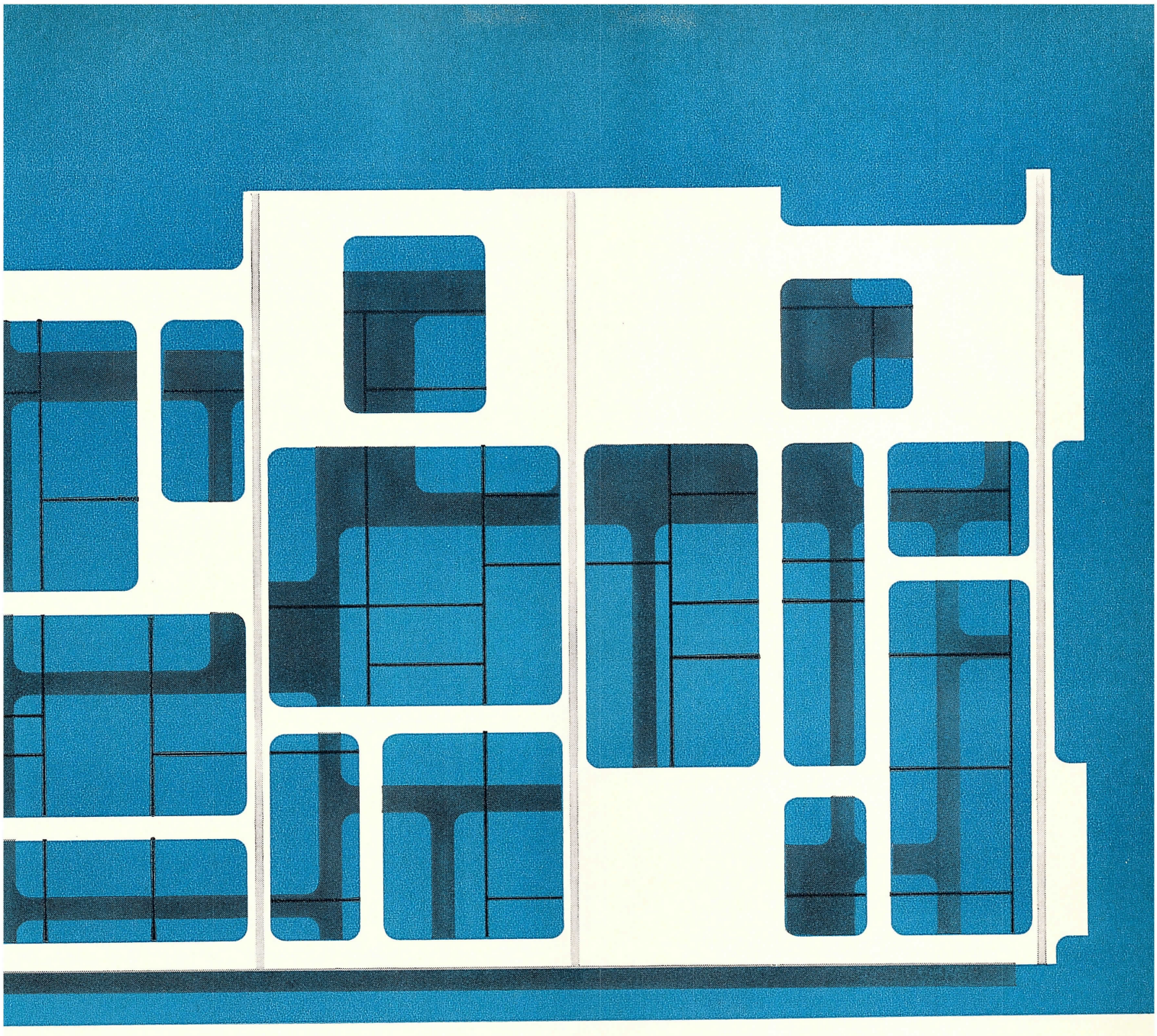
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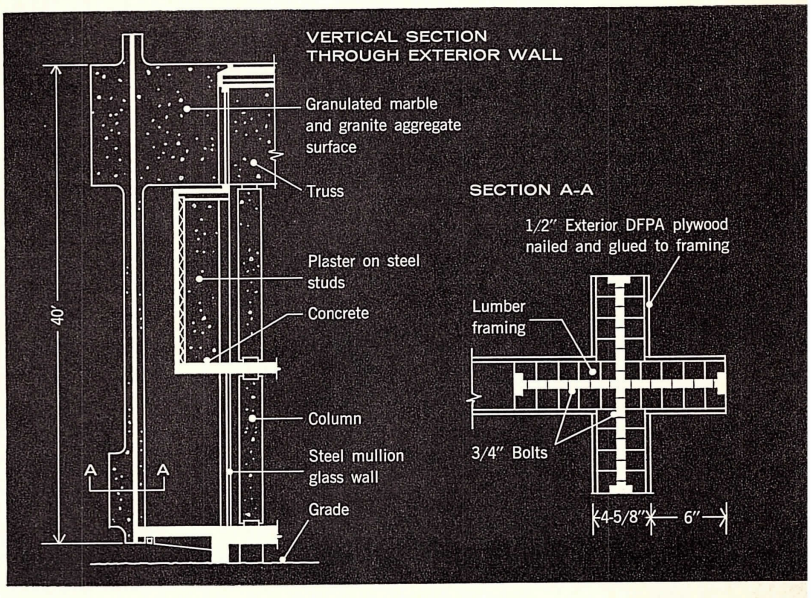


Tyrone Guthrie Theater, Minneapolis, Minn. / Architect: Ralph Rapson, A.I.A., Architects, Inc. / Structural Engineers: Meyer & Borgman / Contractor: Watson Construction Co.

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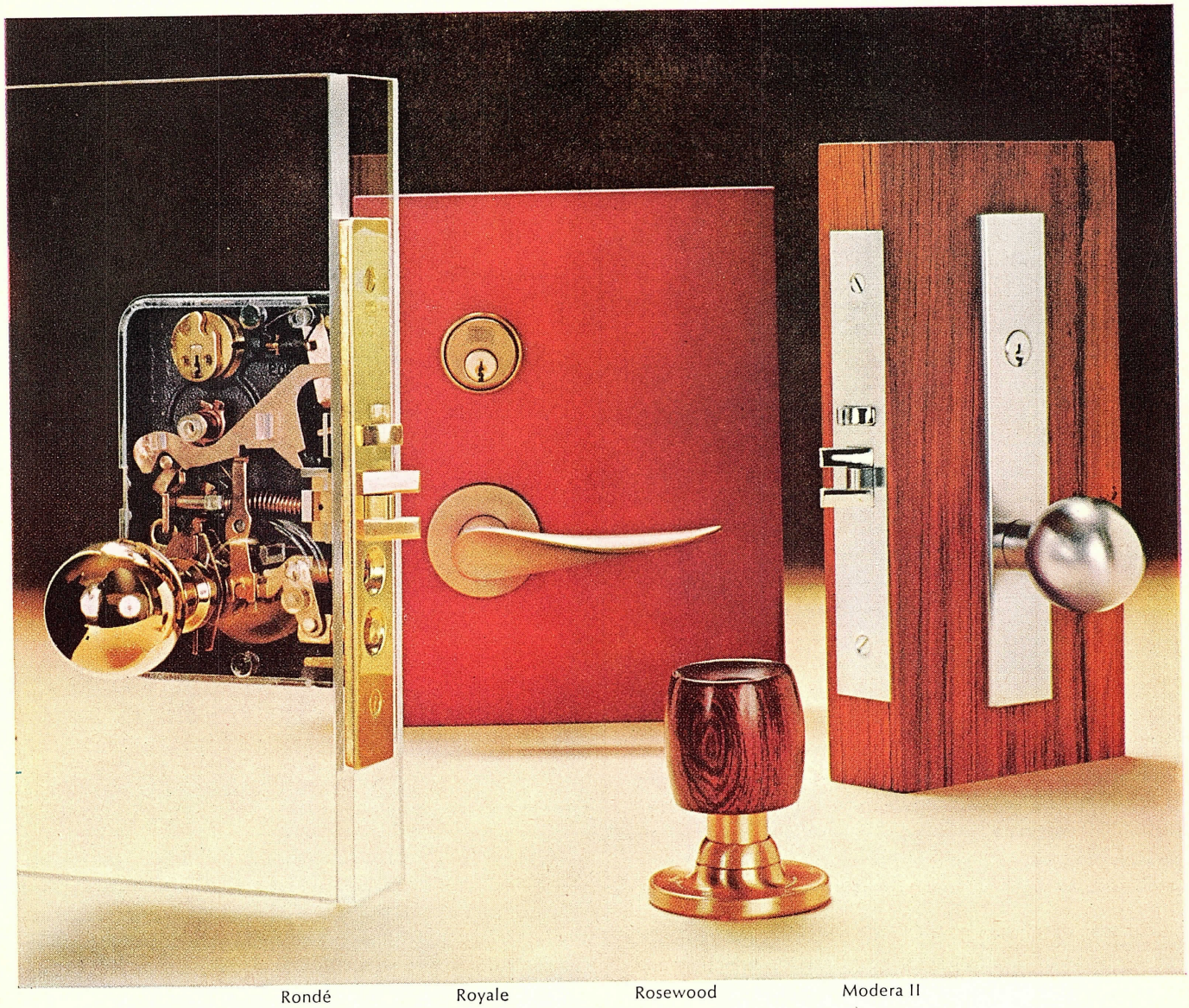
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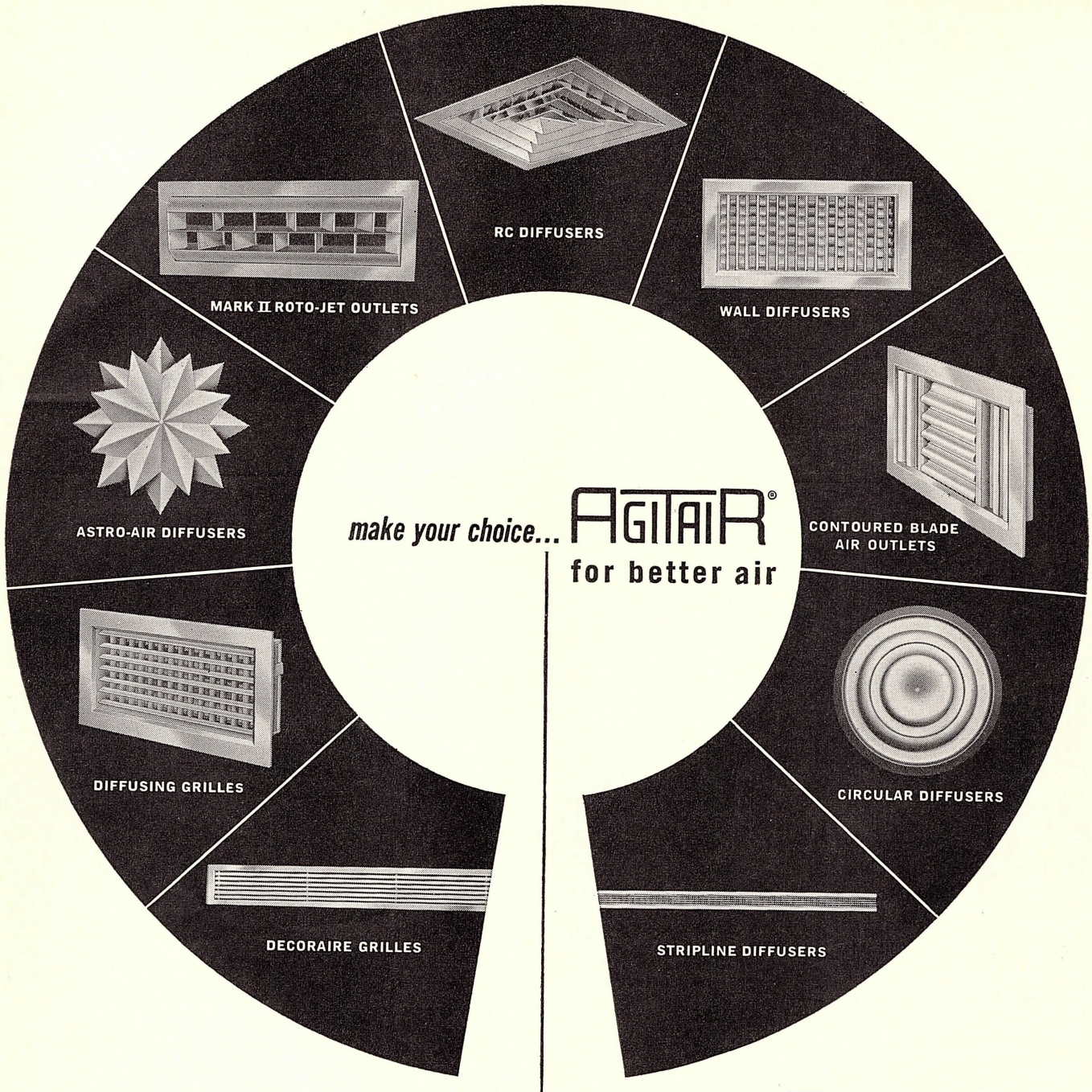
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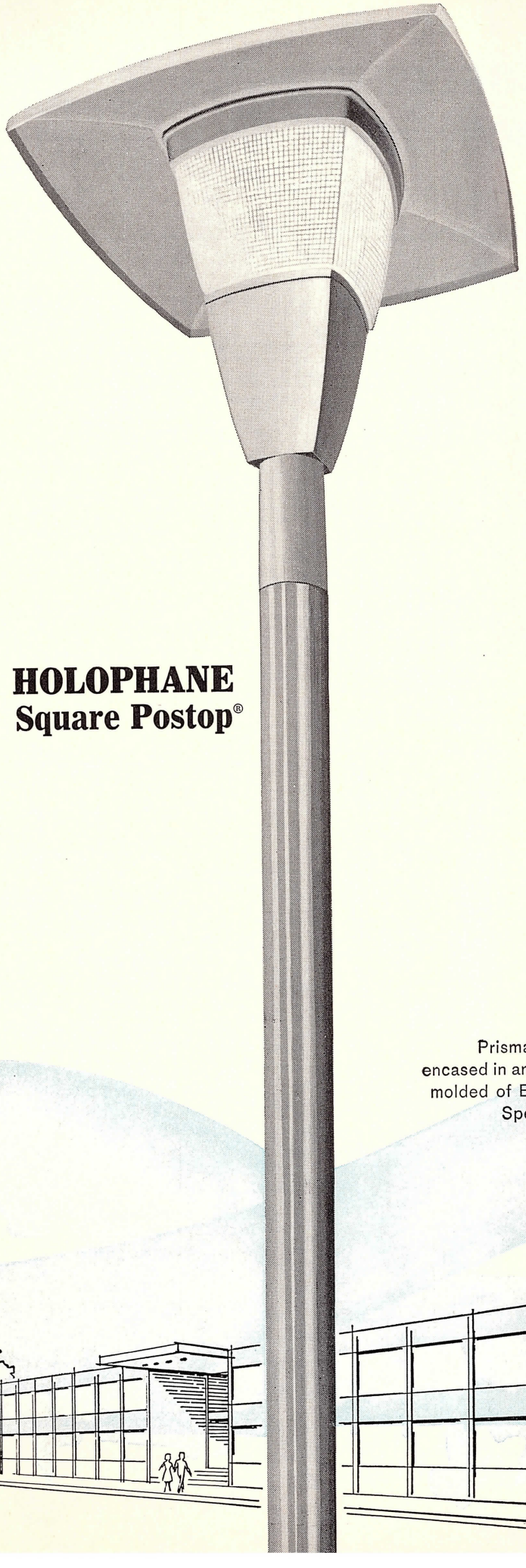
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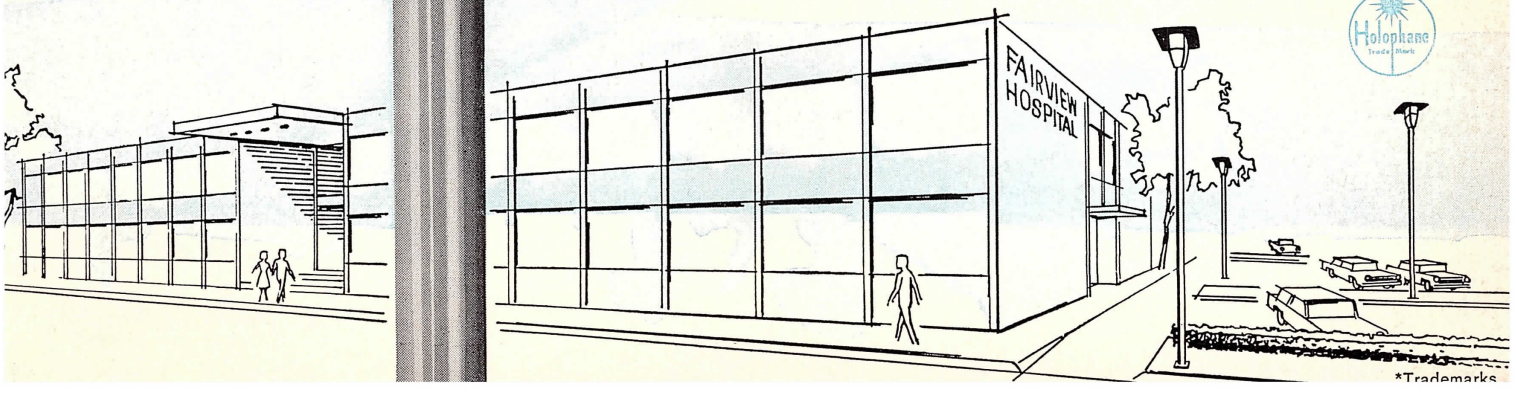
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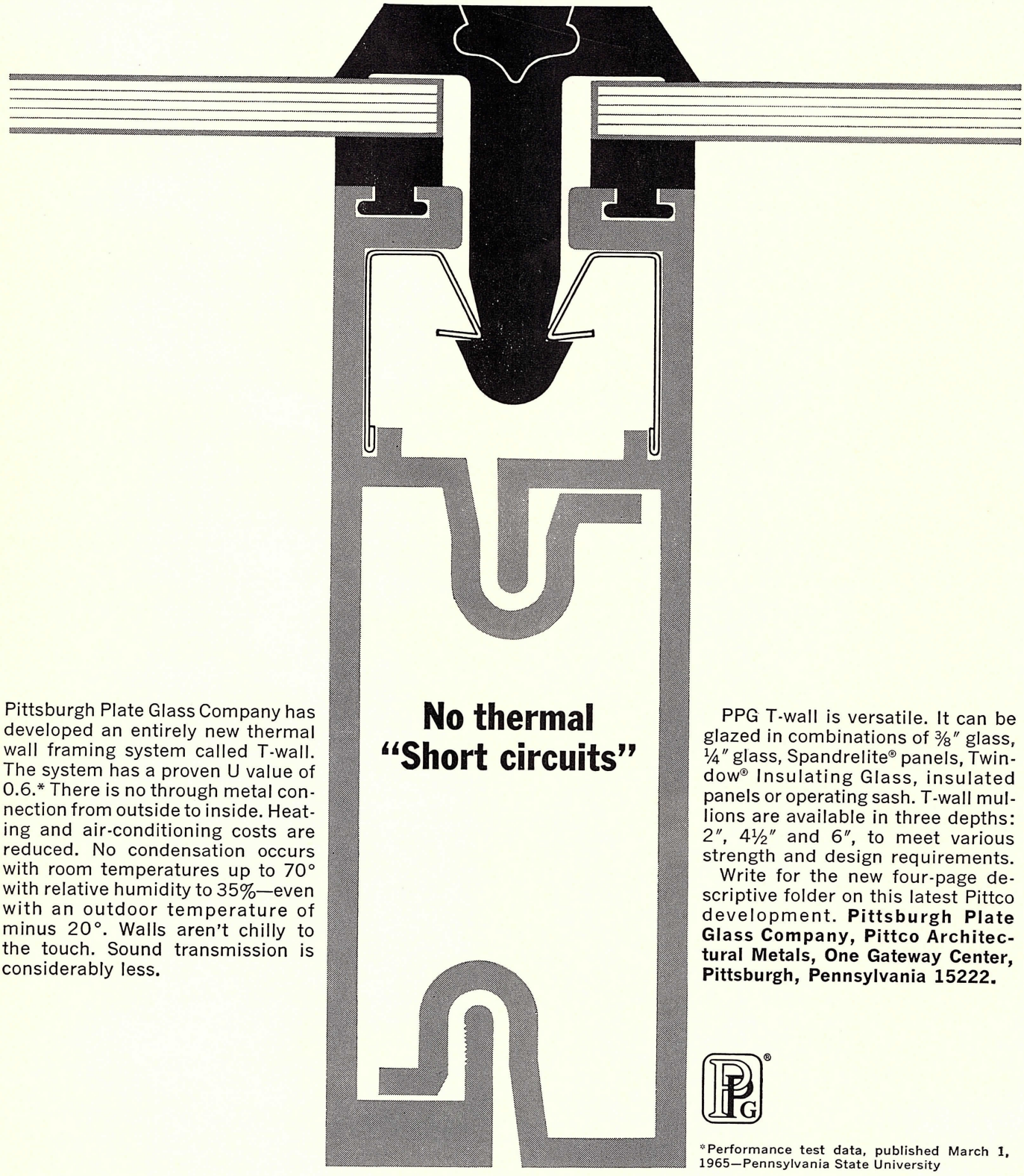
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Required Reading

continued from page 50

ing the scope of religious architecture.

The tremendous change in religious architecture in recent years has been due in large part, the author believes, to the utilization of the potential for new structural freedom of steel and reinforced concrete. Mr. Smith also believes that these materials have "been used far more boldly and with far greater sophistication in the new churches of Europe than in those of the United States."

The book concentrates primarily on the "room for worship" itself and the factors that do or do not contribute to establishing the necessary spiritual quality in the building as well as an intimacy between the priest and the people.

Among the 51 architects whose work is presented are: Alvar Aalto, Le Corbusier, Auguste Perret, Dominikus Böhm, and Rodolf Schwarz. There are two very useful four-page pull-outs of comparative plans and interior photographs of each of the 60 churches. The churches are presented alphabetically according to country and architect, and the text includes 558 photographs and 263 line drawings.

Also included are a bibliography, and an index with the dates of the year of completion of each church.

The book was made possible by two grants-in-aid from the Brunner Committee of the New York Chapter of the American Institute of Architects and the College of Fellows of the A.I.A.

While many of the churches shown will be familiar to readers of ARCHITECTURAL RECORD and other architectural periodicals here and abroad, the interest of the book to architects concerned with church design should not be diminished by that fact. All of the churches shown have been photographed by Mr. Smith himself, and commentaries are based on the author's own experience of the buildings as well as on information supplied by their architects.

Readers of such earlier books of Mr. Smith's as "Brazil Builds," "Sweden Builds" and "Italy Builds" will be happy to know of this addition to a unique collection by an architect who is also photographer *and* author.

continued on page 100



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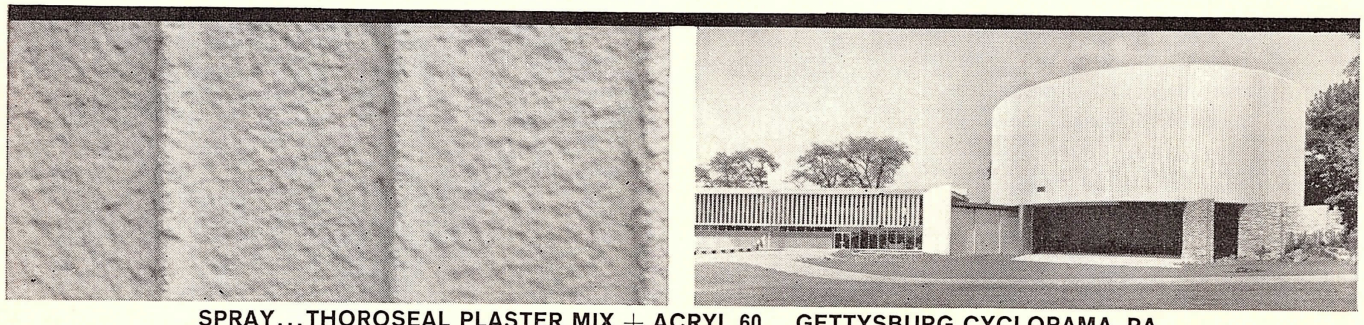
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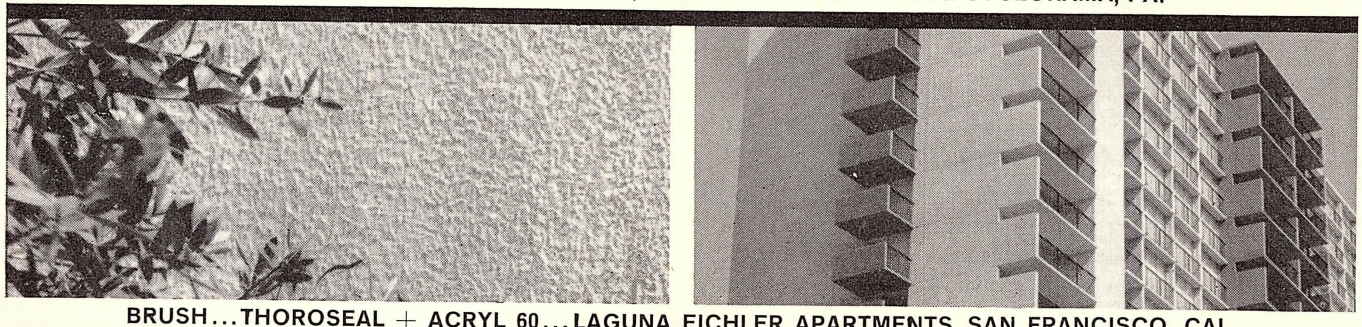
For more data, circle 48 on Inquiry Card ➔

THORO SYSTEM WATERPROOFING

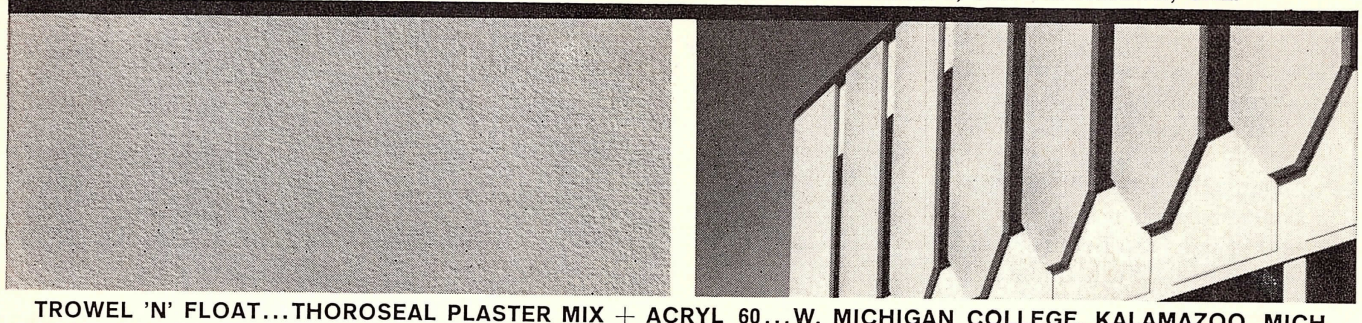
gives many durable, cost-saving, modern textured finishes



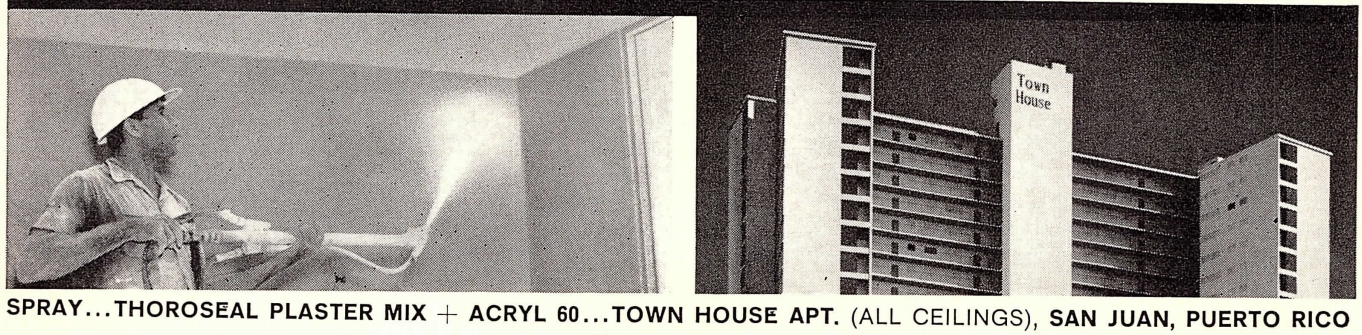
SPRAY...THOROSEAL PLASTER MIX + ACRYL 60...GETTYSBURG CYCLORAMA, PA.



BRUSH...THOROSEAL + ACRYL 60...LAGUNA EICHLER APARTMENTS, SAN FRANCISCO, CAL.



TROWEL 'N' FLOAT...THOROSEAL PLASTER MIX + ACRYL 60...W. MICHIGAN COLLEGE, KALAMAZOO, MICH.



SPRAY...THOROSEAL PLASTER MIX + ACRYL 60...TOWN HOUSE APT. (ALL CEILINGS), SAN JUAN, PUERTO RICO

It is now possible to choose from a wide variety of lasting, **waterproof** textured finishes when you choose a Thoro System Product. These remarkable, modern materials provide a protective finish that seals concrete and masonry against all kinds of weather, temperature, water. They possess high compressive strength and can be used inside or out.

Pictured above are a few of the many job examples where Thoro System Products have been specified and used with outstanding results.

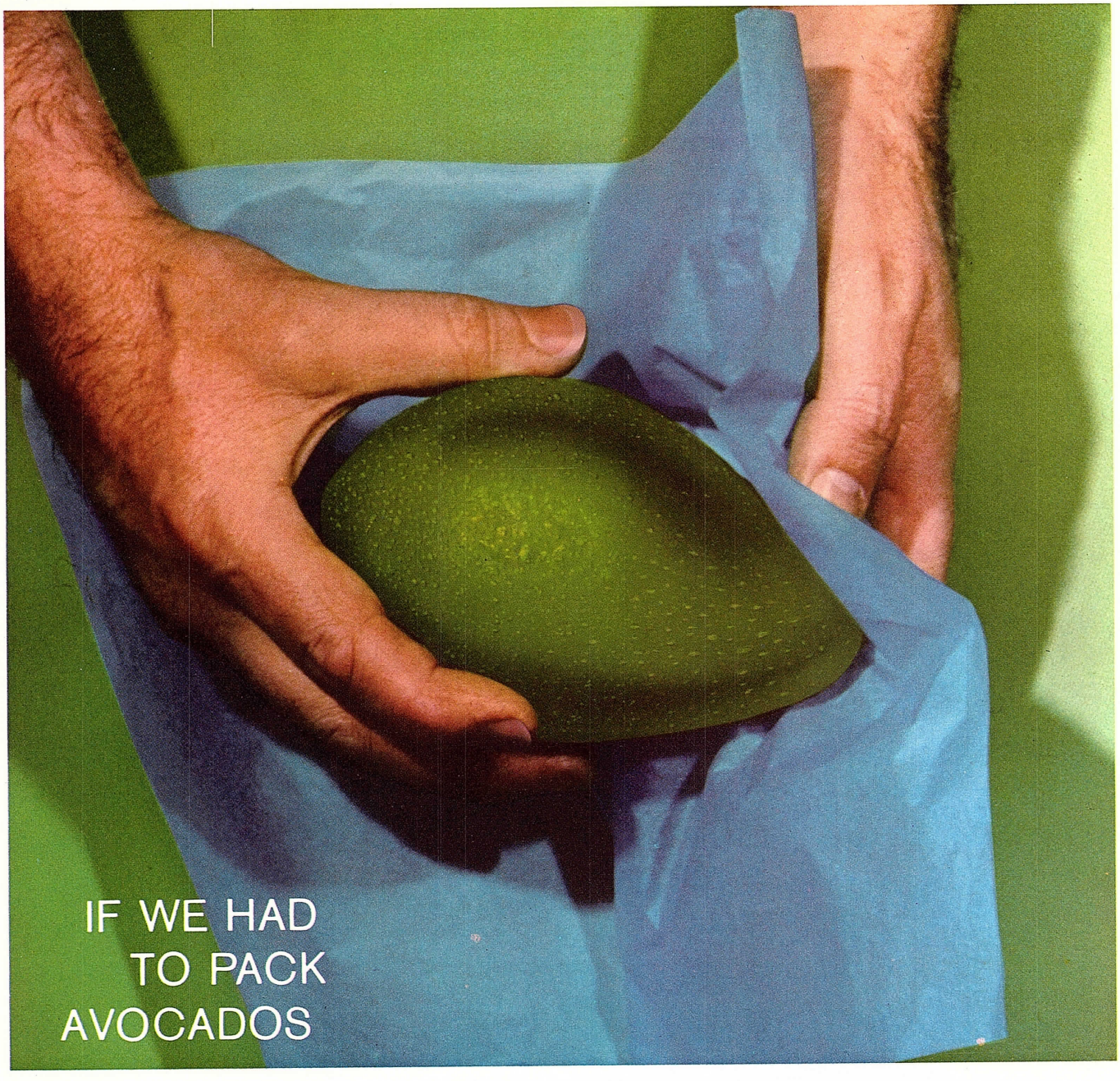
For more information about Thoro System Products, write for Brochure #17.

S T A N D A R D D R Y W A L L P R O D U C T S

DEPT. 65-AR-3 NEW EAGLE, PA.

For more data, circle 49 on Inquiry Card

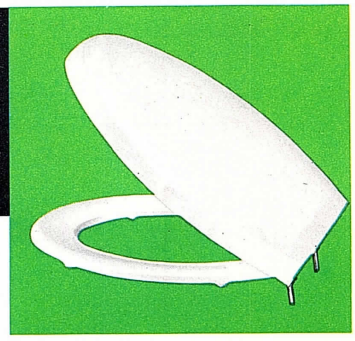
For more data, circle 50 on Inquiry Card ➔



We couldn't treat them any more tenderly than the way we handle our product. First, each fine seat slips into its protective polyethylene bag, the next moment it's encased in an armor of corrugated . . . nothing dull, but award-winning individual cartons and then by sixes and tens, to hi-test shipping containers. When you make a good product you spend good money to insure arrival at the peak of perfection.

BENEKE CORPORATION

THE FIRST NAME IN SEATS—THE LAST WORD IN QUALITY



CHICAGO	NEW YORK	SAN FRANCISCO	NEW ORLEANS	PARIS	TORONTO
Oak Park	Woodside	Milpitas	Louisiana	France	Canada
AU 7-9500	OL 1-9200	262-4410	JA 5-3776	Passy 19-53	CH 9-7170

RōWay motor operators permit fast, effortless door movement every time!

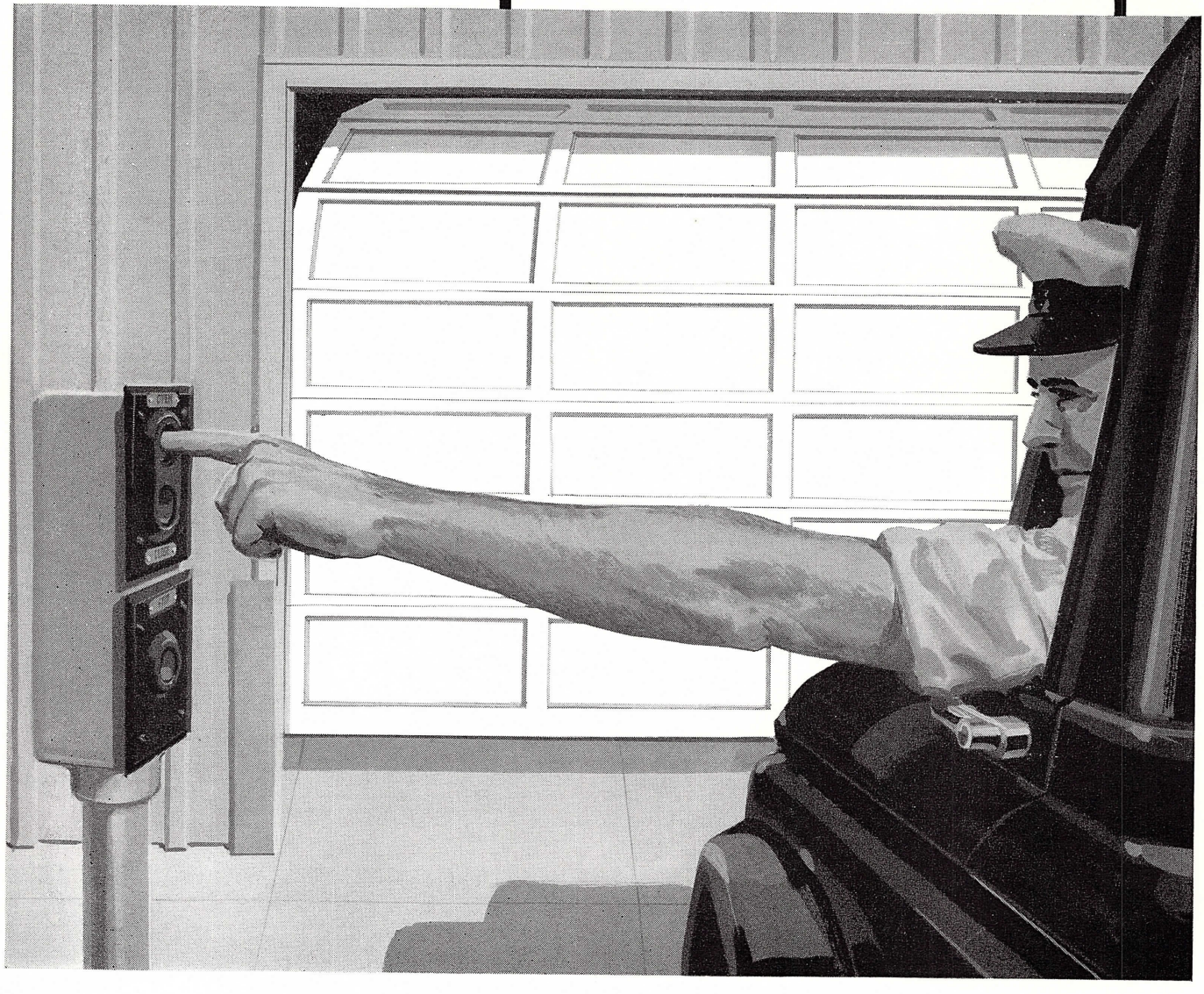
Consider convenience . . . automation in business demands automation in service facilities, a job admirably performed by RōWay electric motor operators. A "touch on a push button," and products passing through RōWay doors are picked up or delivered, moved or stored effortlessly, conveniently.

Consider reliability . . . automation depends on quality motors, switches, relays, starters. Since 1930 thousands of RōWay doors have been in constant operation, using component parts carefully selected for reliability by RōWay engineers.

Consider economy . . . automation motivates economy. Traffic moving through quick opening and closing doors earns time, saves heat or conditioned air.

Consider safety . . . doors, parts, personnel . . . all fully protected by a built-in clutch if moving doors strike an obstruction. RōWay electric motor operators and doors make for safety, economy, reliability and convenience. Consider calling your RōWay distributor. He has all the facts and figures on the complete RōWay Line, including wood, steel, aluminum and fiberglass doors.

there's a RōWay for every Doorway!



INDUSTRIAL / COMMERCIAL / RESIDENTIAL

RōWay OVERHEAD DOORS

Find Your Nearest Distributor in the "Yellow Pages"

SEE OUR CATALOG IN SWEET'S OR WRITE FOR COPY

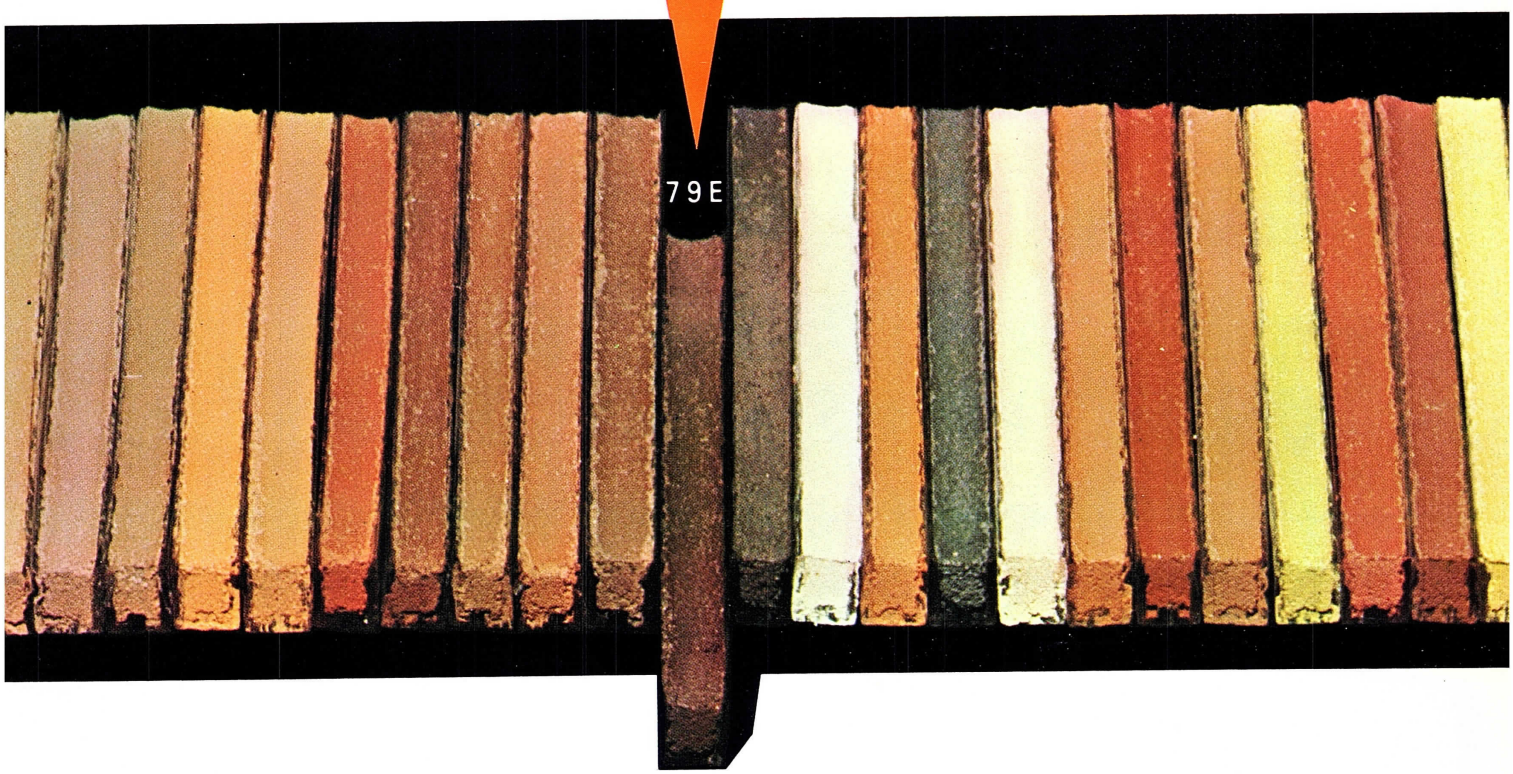
ROWE MANUFACTURING COMPANY

Galesburg, Illinois
Dept. AR55

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For more data, circle 52 on Inquiry Card ➔

NEW MEDUSA
CUSTOM COLOR
MASONRY CEMENT **79E**



in the wall . . . color perfect!



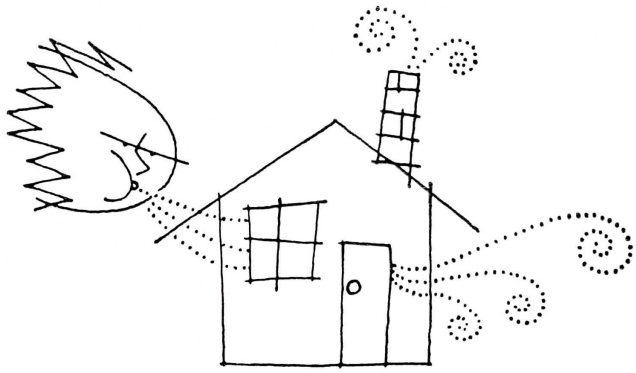
Medusa Custom Color 79E is a rich, chocolate-colored masonry cement . . . one of a number of colors you can specify . . . and **get** . . . with assurance. In this modern industrial job (120,000 brick), the chocolate mortar matches the brick precisely and heightens the striking contrast to precast panels of Medusa White. In other jobs, you may want a contrasting or harmonizing mortar to the brick. Whatever the color . . . Medusa will produce it with uniformity . . . bag after bag.

Medusa Custom Color is scientifically mixed at the mill . . . delivered to the job-site in 70 lb. bags ready for sand and water. Permanent on the wall. Fast to light pigments. When mortar color is vital . . . specify Medusa Custom Color Masonry Cement. Write direct for more data.

American Greetings Corporation, Cleveland, Ohio. Architect: Alexander A. Papesh, Cleveland, Ohio. Engineers: Osborn Engineering Co., Cleveland, Ohio. General Contractor: Gillmore-Olson Co., Cleveland, Ohio. Masonry Contractor: Jacob Haditsch, Cleveland, Ohio.

(This building also has precast panels of Medusa White and roof and and floors of Medusa ChemComp.)

MEDUSA PORTLAND CEMENT COMPANY
P.O. Box 5668 • Cleveland 1, Ohio



You know as well as we do...

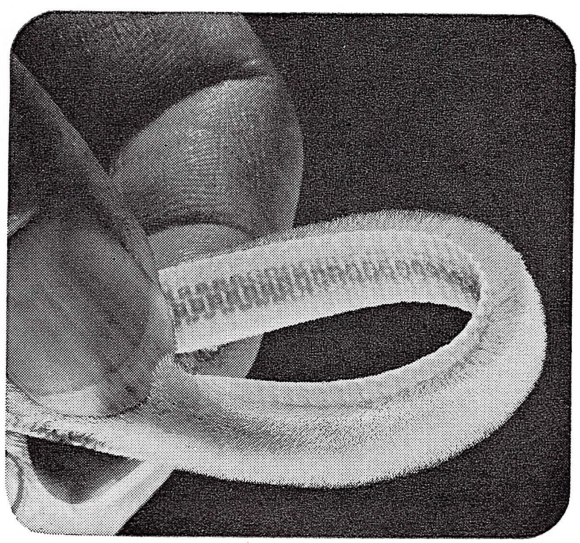
some windows and doors don't have any weatherstripping at all

even though heat loss may average from 17% to 25%

You know as well as we do...

some windows and doors are still weatherstripped with vinyl or metal

even though Poly-Pile* is greatly superior in a dozen ways



Windows and doors don't leak, squeak, stick, scrape or cause gripes and call-backs when they have our rotproof, bugproof, mothproof, mildewproof seal. Windows and doors never suffer from vinyl-tackiness at the seal in summer, or vinyl-brittleness in winter. Poly-Pile has a million miniature springs of polypropylene that squeeze between uneven surfaces to block wind and water, and bounce back from thousands of closings. Insist on Poly-Pile, the seal that *recovers* and provides absence of shrinkage or hardening or of metal's denting and pitting from industrial fallout. Don't settle for less!

Schlegel weatherstripping gives Added Value.

*Poly-Pile is a trademark of The Schlegel Manufacturing Company

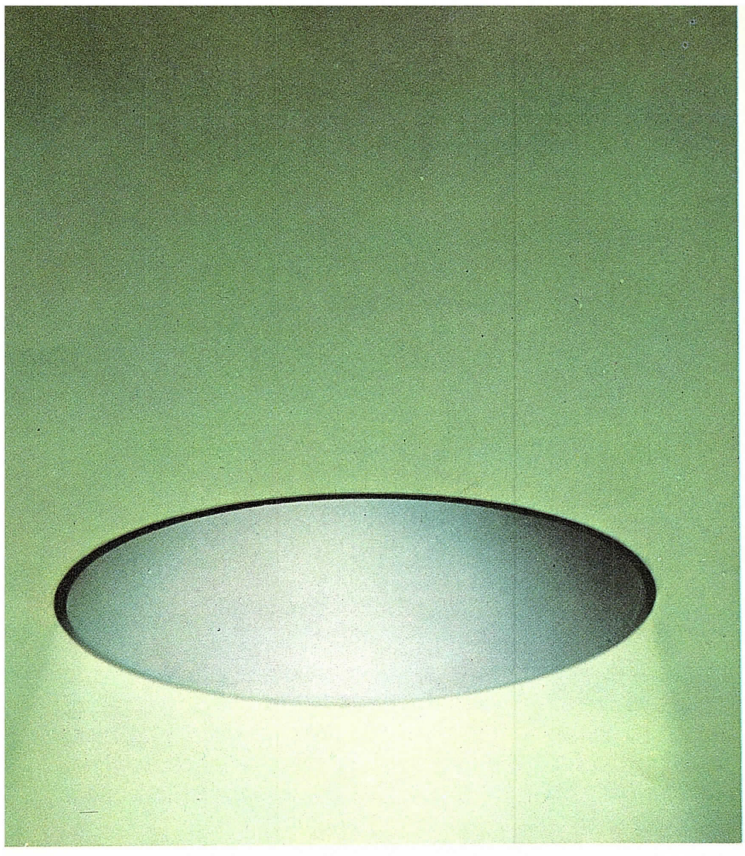
Schlegel **WOVEN PILE WEATHERSTRIPPING**

THE SCHLEGEL MANUFACTURING COMPANY • P.O. BOX 197 • ROCHESTER, N.Y. 14601

AAMA ASSOCIATE MEMBER

For more data, circle 53 on Inquiry Card

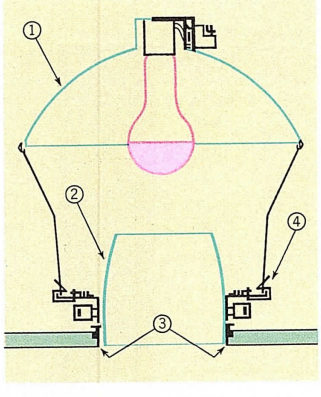
For more data, circle 54 on Inquiry Card →





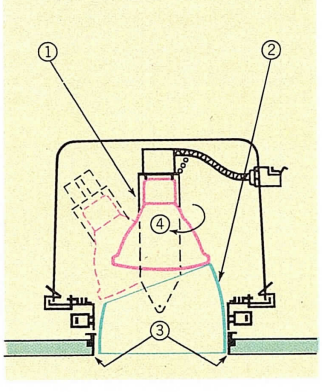
general downlight

adjustable accent light



SILVER BOWL REFLECTOR

①Total light is directed upward to ellipsoidal Alzak® reflector which focuses light through② small molded black phenolic cone aperture—retained in③reversible (Duo-Cast) die cast trim.④Spring loaded latches permit removal of housing for access to splices and/or top relamping.



ADJUSTABLE ACCENT LIGHT

①Lamp holder support gives up to 35° of vertical angle adjustment.② Molded, high heat aperture shield in③reversible (Duo-Cast) die cast trim ④rotates through 358° horizontal arc with positive stop. Lamp/shield relationship consistently maintained. May also be used in sloping ceilings.

matched look for many needs. Calculite.®

The difference is in the light. Not the look! From general illumination to fully flexible accent lighting —completely recessed Calculites deliver a variety of lighting effects with look-alike units. Silver Bowl Reflector downlights provide widespread general illumination with minimal source identification. Adjustable Accent Light features easy adjustment for focal lighting. In both units black aperture cones fully shield the source, eliminate distracting brightness, and create a matched look. For maximum versatility, reversible Duo-Cast* trim provides flush trim in plaster ceiling or minimum width overlap in dry ceiling construction. Twenty-five basic Calculite groups (with more than 100 variations) offer a remarkable range of lighting techniques: general or supplemental accent lighting; vertical surface illumination; sharp or soft-edge beam patterns; minimum or articulated source identification. For the clean look . . . see look-alike Calculites at your nearest Lightolier distributor. Check the Yellow Pages or write to Lightolier, Jersey City, N. J. 07305 for brochure 44.

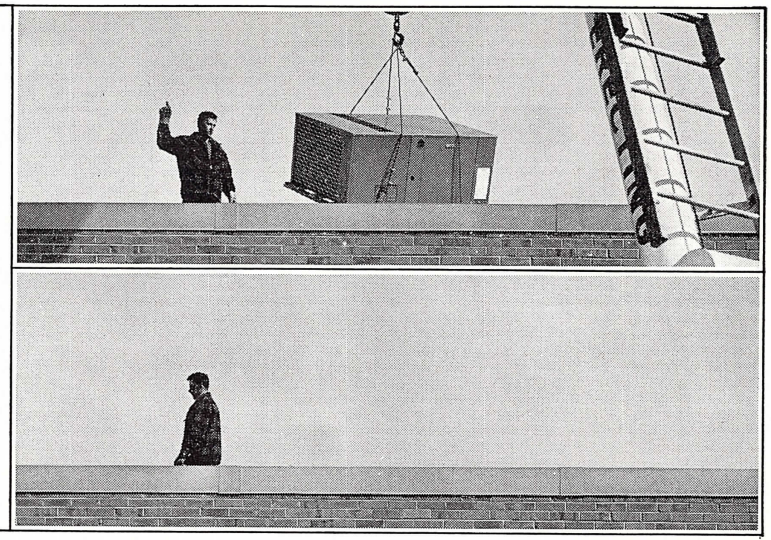
LIGHTOLIER®

Showrooms: 11 East 36th Street, New York; 1267 Merchandise Mart, Chicago; 2515 South Broadway, Los Angeles; 1718 Hi-Line Dr., Dallas.

*TRADEMARK

PATENTED — U. S. A. & CANADA

Worthington's Climatrol® low profile Roof-top line installs easily... stays out of sight



The Climatrol Roof-top offers you the lowest-profile, completely packaged year 'round Climate conditioner in the industry. Its low lines harmonize with the clean look of today's modern architecture.

Here's a single, attractive unit that cools, heats, filters, dehumidifies, and circulates air and is easily installed. It requires a bare minimum of duct work—even when installed at ground level; and simplification of curbing detail eliminates construction problems. The Worthington Climatrol Roof-top line ranges in capacity from 2-40 tons cooling and 60,000 to 640,000 BTUH heating. It's the most economical way to air condition single story buildings.

Most important of all, the Climatrol Roof-top is designed, styled, and engineered to work *with you—not against you.* We designed it to meet the sleek sweep of modern styling. That's just what you would expect from Worthington.

Get the full story. Contact your Worthington sales engineer, or write: Worthington Air Conditioning Co., Dept. 12-58-5, East Orange, N.J.

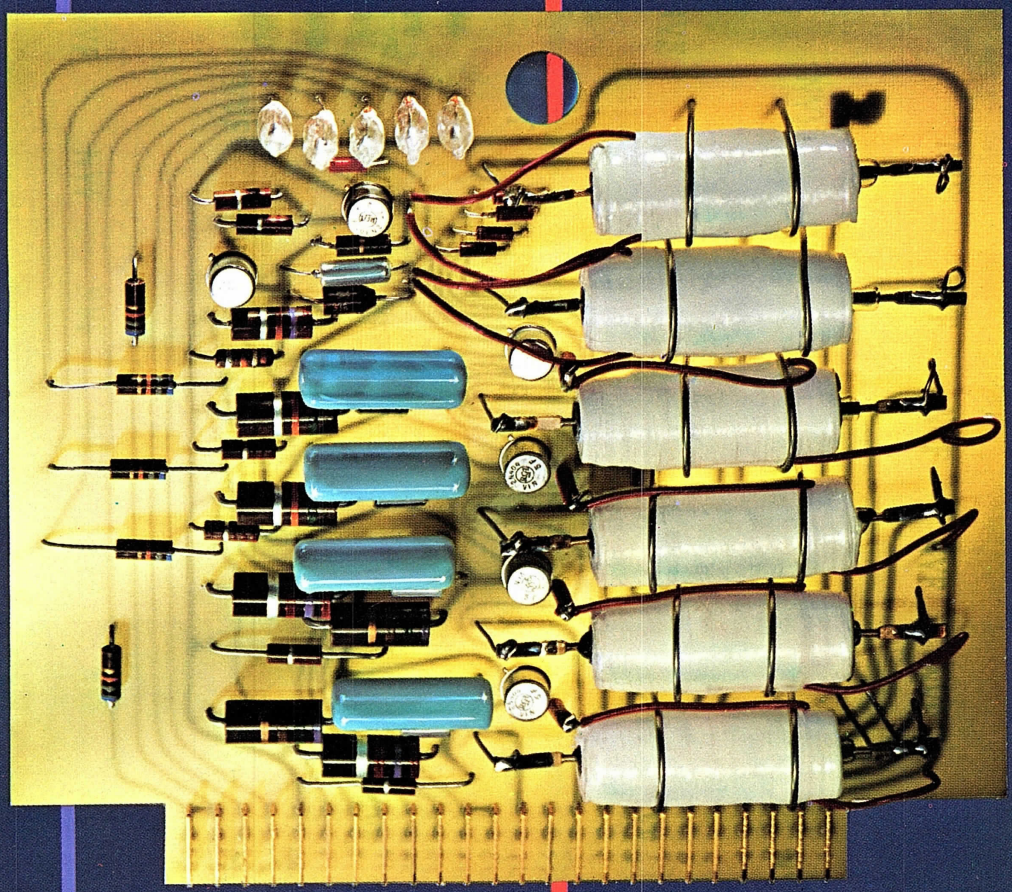
The big move UP in air conditioning

HEATING AND COOLING FOR HOME, BUSINESS AND INDUSTRY

WORTHINGTON

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For more data, circle 56 on Inquiry Card ➔



*from the dynamic world of HAUGHTON ELEVONICS**

Solid state, electronic plug-in circuitry to cut complexity and cost in elevator automation

Designing solid state electronic circuits to replace bulky, mechanical devices and vacuum tubes is the key to reducing complexity and cost in elevator automation systems.

That's why our program in Elevonics includes a generous share of research and development work in solid state electronics.

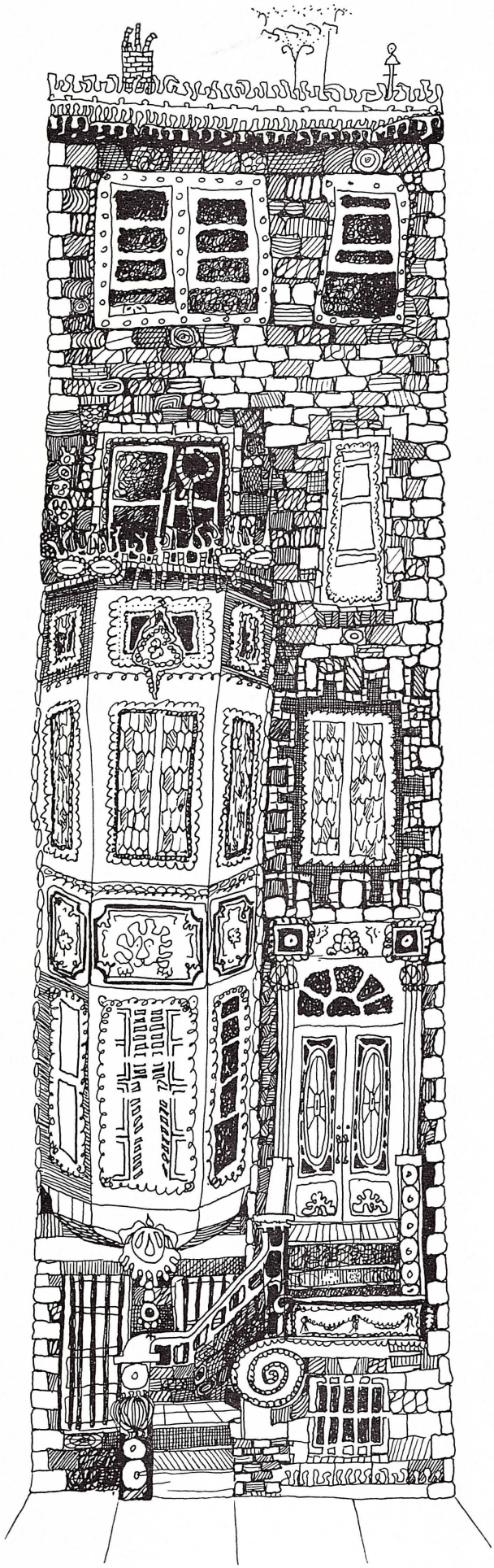
Our success is measured in many ways. One: a new computer-control system that utilizes miniature, solid state electronic components, joined together on plug-in circuit boards. Solid state components are virtually failure-proof. And they enable our computer to function with electronic speed and accuracy in matching elevator service to traffic needs, every moment of a building's busy life. Remember this when it's time to modernize existing elevators, or install new ones.

Our representative will give you complete details. Or, write to us.

**Haughton's advanced program in systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Registered, U. S. Patent Office.*

HAUGHTON
ELEVATORS/ESCALATORS

Haughton Elevator Company / Division of Toledo Scale Corporation / Toledo, Ohio 43609



GO MODERN

GO MOORISH

GO MEDITERRANEAN

GO TRADITIONAL

GO ORIENTAL

GO TEXTURE*

GO *wild!*

[BUT ONLY BURKE RUBBER COVE BASE CAN GO WITH YOU]

There are 3 reasons:

1. Only Burke Rubber cove base offers 53 colors – 34 pastel and 19 marbleized. Or choose new TEXTURED-COVE (see below). Complete color flexibility gives you unlimited creative expression.

2. Choose Topset cove or Carpet style. (Topset base in 2½-inch, 4¼-inch, 6-inch heights; Carpet base in 2½-inch and 4-inch heights). There's a Burke Rubber cove base for every floor – tile, sheet-goods, or carpet.

3. Burke Rubber's unique thermoset vulcanizing process "ties" rubber molecules together permanently. Result: extra strength, extra beauty, extra flexibility, extra long life. With no shrinkage. Extra flexibility compensates for irregularities in floor or wall, insures fewer call-backs.

Nothing ties "wall-to-floor-to-room" like Burke Rubber cove base – the finishing touch for a beautiful floor.

B/R

***NEW FASHION FIRST!**
BURKE RUBBER TEXTURED COVE BASE!

Ask about it. It's embossed with beauty, giving a touch of luxury to any residential or commercial interior. Hides dirt, scuffs, seams, looks beautiful longer. Available in 13 colors styled for latest trends in furniture, draperies and floor coverings.

Write to Dept. AR-5 for free color catalog, or call your nearest Burke sales office. Samples sent on request.

BURKE RUBBER COMPANY

SAN JOSE, CALIFORNIA: 2250 South 10th Street • 408 297-3500
LOS ANGELES, CALIFORNIA: 1459 Esperanza Street • 213 269-0757
DENVER, COLORADO: 842 Walnut Street • 303 534-1852
NANUET, NEW YORK: 31 West Prospect Avenue • 914 NA3-3972

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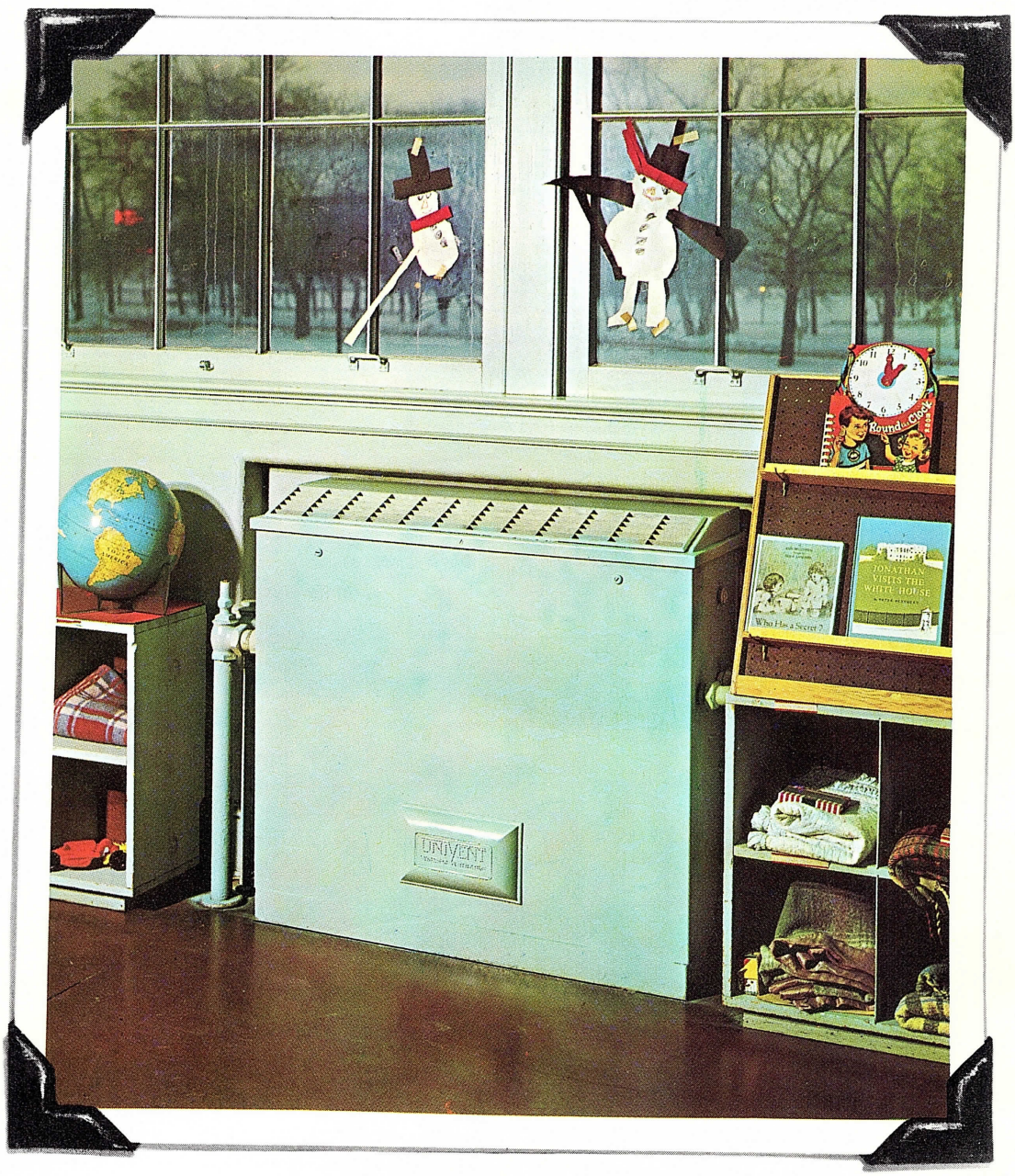
New Faces

Take fresh paint—that's new.
Take marble—that's new and enduring.
Better yet, take Avoncraft porcelainized steel components—they're new, enduring *and flexible.*
Imaginative builders choose them with pride.
Naturally. Avoncraft makes a habit of miracles in metal.

ARCHITECTURAL PORCELAIN ENAMELED STEEL BY Avoncraft

A Division of Avondale Shipyards, Inc., P. O. Box 50280, New Orleans, La. 70150 • Phone 504–866-4561

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38 years old and still going strong

If we want to sell you new Herman Nelson unit ventilators . . . why do we show you a photo of an old one?

We couldn't think of a better way to let you know . . .

(1) we build them to last! and . . .

(2) they're worth a bit more.

The Herman Nelson unit ventilator at left (circa 1927) is one of 12 that are busily working away, providing comfortable classroom atmospheres for Franklin School,* Valley Stream, L.I., New York, just as they did 38 years ago when they were originally installed. Says District Principal Robert Carbonaro of Union Free School District #24, "We're rather proud of the way our school has held up. The people who planned it planned it well."

38 years from now we think you'd like people in your community to say that about the school you're planning now. Here are just a few things we're doing to make sure that happens . . .

UNITIZED ONE-PIECE FRAME (which you'll most likely never even see) helps the unit last as long as the building.

DRAFT/STOP DESIGN eliminates chilling downdrafts from the windows in cold weather *without* adding additional (and unneeded) heat to room.

BACK-DRAFT DAMPER cuts fuel costs up to 50% by making sure the right amount of outdoor air (and no more) is introduced to the classroom.

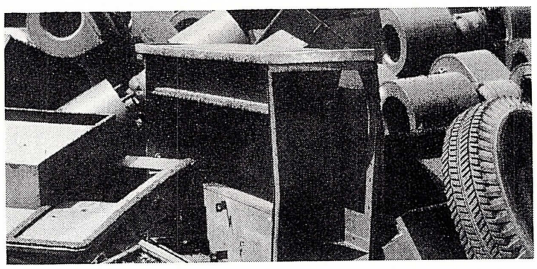
5-YEAR WARRANTY on both parts *and* labor for standard units backs you up against the odd chance that our units won't perform as we promised.

The list is virtually endless.

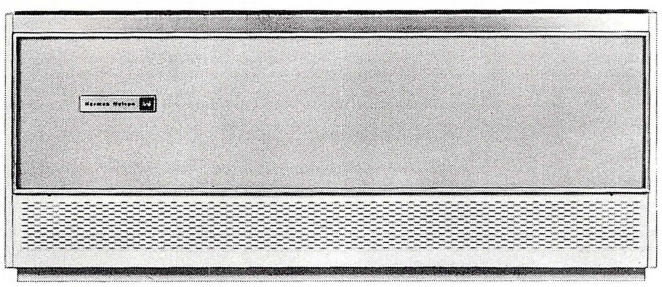
It's the best way we know to insure that 38 years from now we'll still be earning your preference. Who knows, we might even be running photos of your current school in our advertisements then.

**Original architect:*
Frederic P. Wiedersum Associates, Valley Stream, L.I.

MEANWHILE...10 MILES DOWN THE ROAD...



"Brand X units" (not ours), installed 10 years later in a nearby high school, retire to junk yard . . .



to be replaced by sleek new Herman Nelson unit ventilators.

FAR-SIGHTED PLANNERS CHOOSE HERMAN NELSON.

Herman Nelson AAF
SCHOOL PRODUCTS DEPARTMENT

American Air Filter Company, Inc.
215 Central Avenue, Louisville 8, Kentucky
In Canada: American Air Filter of Canada, Ltd., Montreal 9, Quebec

For more data, circle 75 on Inquiry Card

a specification from Hillyard . . .

FOR SEALING AND CURING NEW CONCRETE AND TERRAZZO

PRODUCT NAME: *HILLYARD CEM-SEAL®*

DESCRIPTION:

CEM-SEAL is a modified chlorinated rubber in a volatile aromatic solvent. It forms a clear membrane surface barrier that holds the moisture in the mix for a prolonged curing period to complete hydration. Produces water-tight, dense, hard concrete. At the same time, it protects against the penetration of moisture, stains or other soil as other trades complete construction. CEM-SEAL can be used on vertical installations.

SPECIFICATION AND HOW TO APPLY:

One man, who need not have special training, can apply CEM-SEAL with a sheepskin applicator or ordinary sprayer. CEM-SEAL can be applied as soon as the slab can bear weight, and dries traffic-ready in four hours.

COVERAGE:

500 to 700 square feet per gallon. Only one coat needed.

ADVANTAGES:

Resilient floor tile, paint or surface finish may be applied when slab is thoroughly dry (free from moisture) and providing that preparatory steps are carefully followed.

SAVINGS:

Man hours and material costs are greatly reduced when compared to curing methods using—wet spraying, covering with building paper, wet sand, straw, burlap or plastic membrane.

EXCEPTIONS:

Do not use Cem-Seal on concrete slab that is to receive Bonded or Monolithic Terrazzo.

TECHNICAL DATA:

NVM — 20%. Complies with ASTM C156-55T, water retention efficiency of liquid membrane-forming compounds for curing concrete. Also conforms to ASTM C309-58 Type I as required by the National Terrazzo and Mosaic Association. Pittsburgh Testing Laboratory: Water Retention at 3 days—Average of 3 controlled tests—98.38%.

GUARANTEE:

When applied in accordance with manufacturer's directions, it is guaranteed to meet all claims made for it in the proper curing of concrete and terrazzo floors.

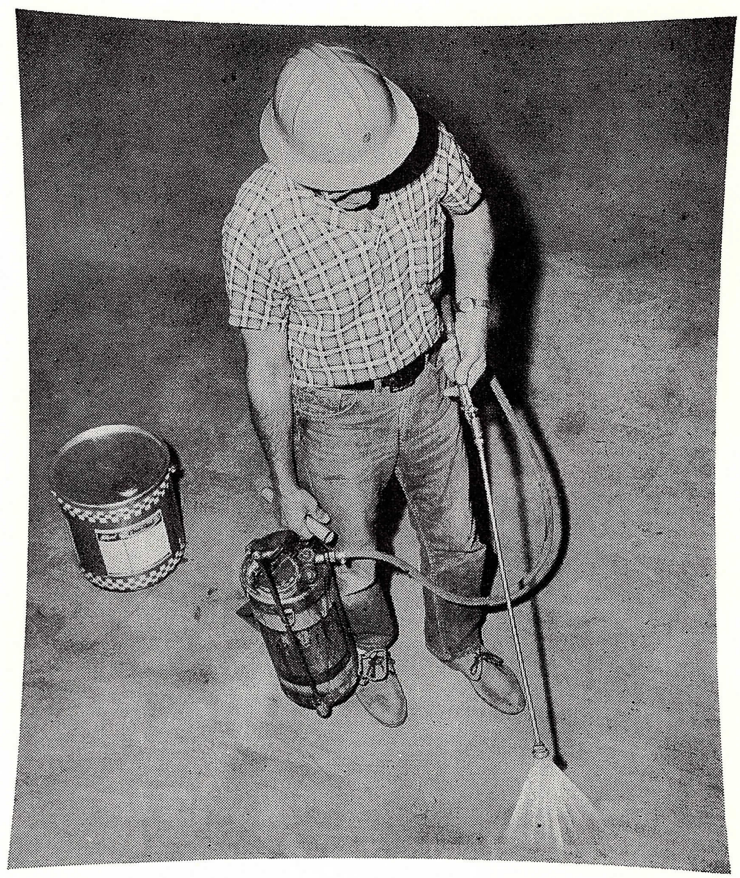
MAINTENANCE:

This is not a wearing surface but will leave concrete smooth and easy to maintain and free from "dusting" and efflorescence.

REFERENCES:

Hillyard A.I.A. File No. 25G
A.I.A. Building Products Register
Sweets Architectural File.

A trained professional Hillyard Architectural Consultant will demonstrate CEM-SEAL for you, at no obligation. He serves "On Your Staff—Not Your Payroll." Write, wire or call collect.





HILLYARD FLOOR TREATMENTS

The Most Widely Recommended and Approved Treatments For Every Surface

Since 1907

St. Joseph, Missouri, U.S.A.
Totowa, New Jersey • San Jose, California

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For more data, circle 77 on Inquiry Card ➔

You don't have to put up a brand new building





to attract new tenants with Mark IV elevators

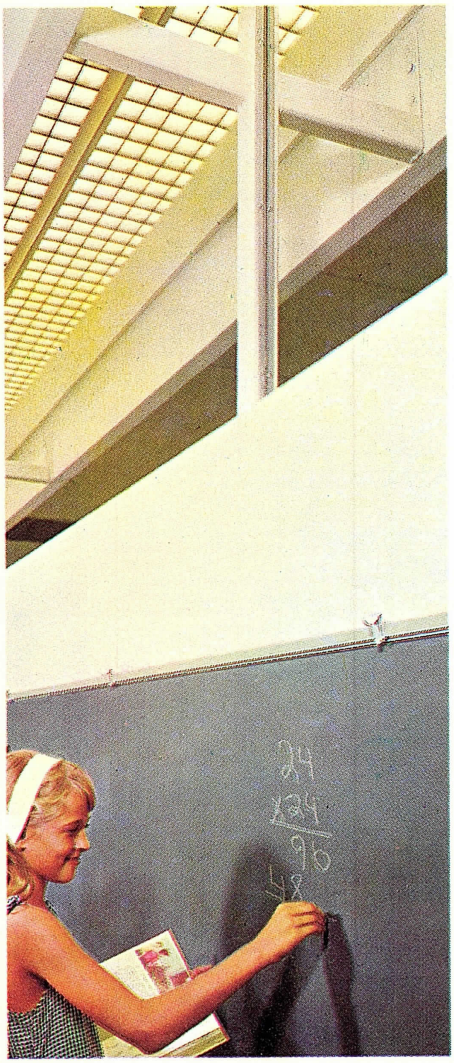
You can modernize with Westinghouse Mark IV's and not only keep old tenants happy, but bring in new ones. Mark IV's are up to 30.6% faster than the most efficient previous system. They 'think' for themselves with computerized controls... respond to calls, not predetermined patterns. Mark IV's always glide to cushioned, level landings. Their doors stay open till the last person enters—then close at once to save time. Modernize with Mark IV's. Or make your new building even more attractive. And let skilled Westinghouse maintenance keep your Mark IV's as efficient as the day they're installed. Westinghouse Electric Corporation, Elevator Division, 150 Pacific Avenue, Jersey City, New Jersey.

You can be sure if it's Westinghouse

Glidden invites you to design with daylight . . .

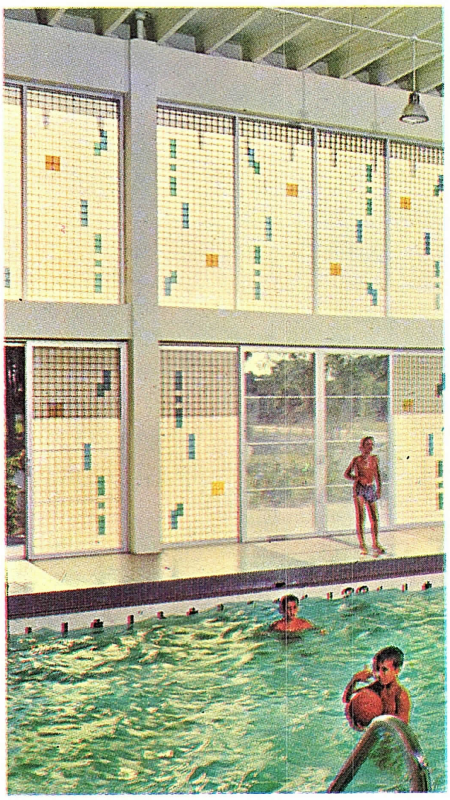


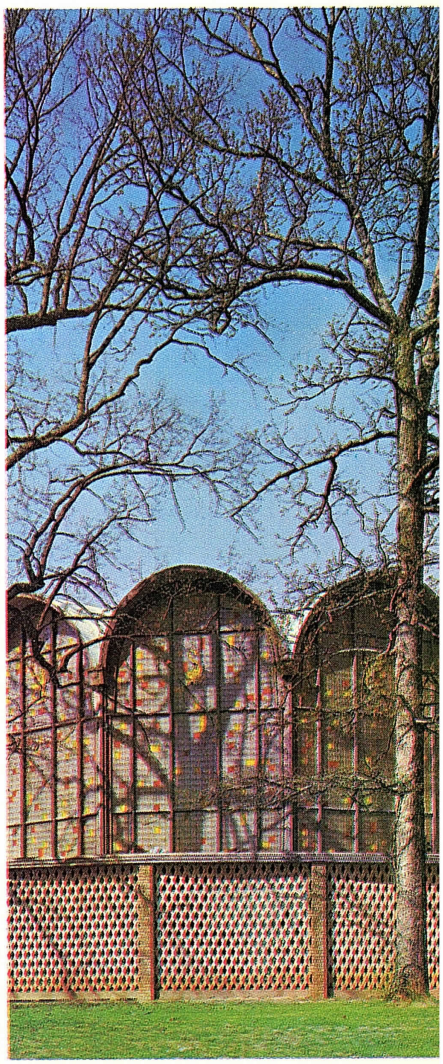
Glidden presents PANELUX® a translucent sandwich panel for curtain walls, skylights, wall panels



FOR TOPLIGHTING—PANELUX transmits and diffuses natural daylight, reduces glare, in classroom of Oneco Elementary School, Oneco, Florida.
Architect: Edward Dean Wyke

FOR IMAGINATION—PANELUX curtain wall with shoji cell pattern adds drama to upswept design of Stone Mountain Marina, Stone Mountain, Ga.
Architect: Cunningham & Forehand





FOR DECORATION—PANELUX brings decorative color, complements wood frame and masonry grill of circular building, Congregation Beth Jacob in Atlanta, Ga.
Architect: Barker & Cunningham

FOR INSULATION—PANELUX helps maintain an even temperature, eliminates condensation, resists shattering in Selby YMCA pool, Orlando, Fla.
Architect: Erwin Gremli II, AIA

PANELUX imparts new richness and variety to panel design. Its translucent polyester and glass fiber faces—with the subtle edge silhouette of the core grid—may be intermixed with a wide choice of accent colors in practically unlimited pattern combinations.

PANELUX transmits controlled daylight, yet assures privacy. It offers you a combination of advantages, such as structural strength, insulation value, weather and shatter resistance, that cannot be equalled by other panel materials. Contact your local Building Specialist Distributor. PANELUX is represented in every major city.

SOLAR LIGHT TRANSMISSION

MATERIAL		SOLAR TRANSMISSION
1. PANELUX, Type I	1-1/2" Thick	43.8%
2. PANELUX, Type I	2-3/4" Thick	37.5%
3. PANELUX, Type II	1-1/2" Thick	58.5%
4. Single Strength Glass		85.0%
5. Double Strength Glass		87.7%
6. Plate Glass, 1/4" Thick		88.0%

One of the primary advantages of PANELUX panels is its transmission of diffused daylight without glare. Tests show the human eye squints when light transmission is above 45%.

INSULATION "U" VALUE

MATERIAL	"U" VALUE
1. PANELUX, Types I and II	0.425
2. Glass Block	0.560
3. Thermopane 1/4" Air Space	0.610
4. Thermopane 1/2" Air Space	0.550
5. Thermopane 1" Air Space	0.530

"U" value is the overall coefficient of heat transfer. Heat energy is reported as Btu/hr./sq.ft. for each degree Fahrenheit. PANELUX panels possess the best insulation factor of any conventional light transmitting material.

Glidden

ARCHITECTURAL PRODUCTS DIVISION

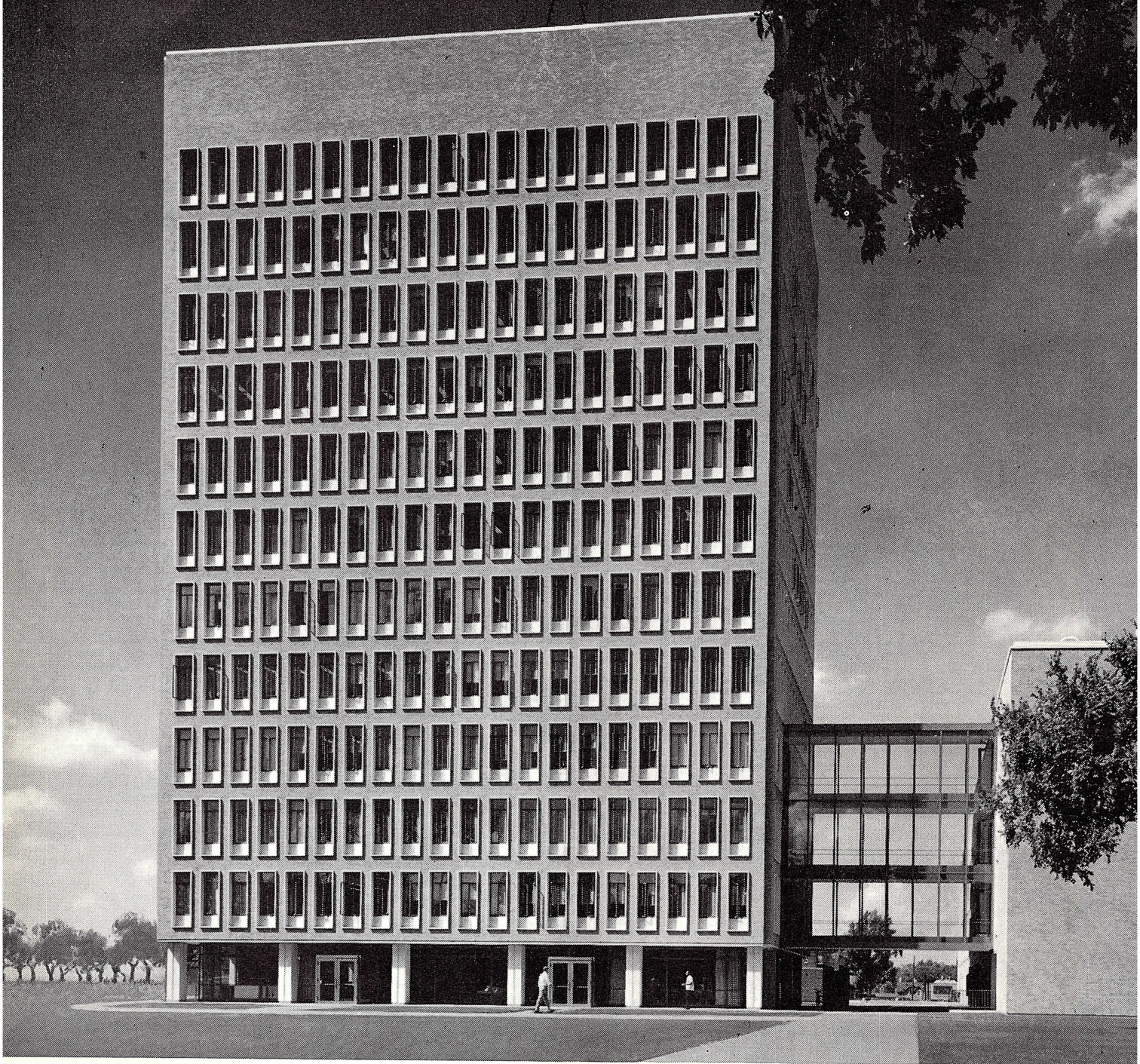
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P. O. Box 19923 • Atlanta, Georgia 30325

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STEEL WINDOWS

MADE IN AMERICA BY AMERICAN WORKMEN



hoto by Warren Reynolds & Associates

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Minneapolis, Minnesota

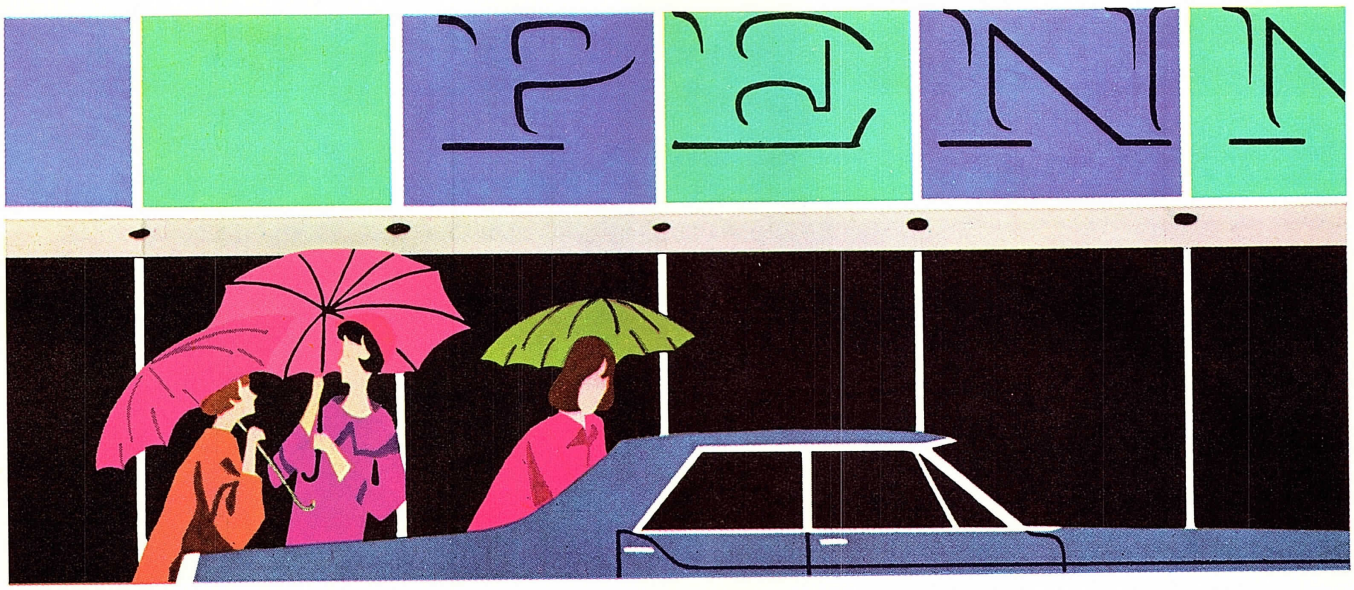
AMMEL, GREEN & ABRAHAMSON, INC.
Architects—Engineers

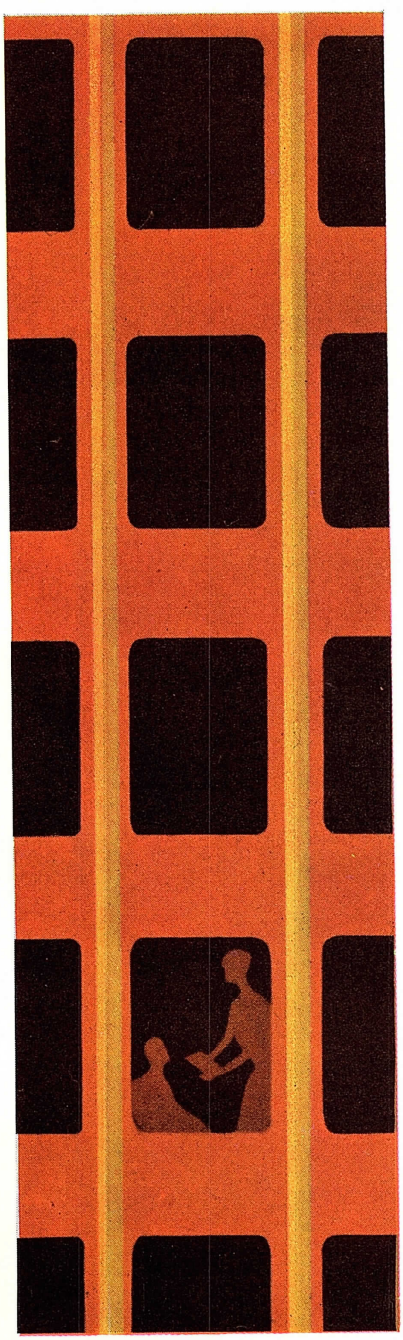
D'ARCY LECK CONSTRUCTION CO.
General Contractors

Steel Heavy Intermediate casement windows were custom made to fit the pre-cast concrete panels which form the distinctive pattern on this 12-story tower. Some 742 of these windows, plus heavy section fixed windows with fin type mullions for the three-story connecting bridge were furnished and installed by Hope's.

Working with Architects Hammel, Green & Abrahamson, Inc., window details were developed in the preliminary stages of the design and we are proud of our participation in the construction of this attractive building. May we help you?

HOPE'S WINDOWS, INC. *Jamestown, N. Y.*





Planning a new building?

Keep this in mind: FINISHES OF KYNAR* 500 project 30 years of useful maintenance-free life for architectural metals. These finishes are:

- ☐ **Beautiful as porcelain... cost much less!**
- ☐ **Durable as anodizing... in a rainbow of colors!**
- ☐ **Longer lasting than films... will not de-laminate!**

Finishes using Pennsalt's Kynar 500 are made by the nation's leading paint companies. The finishes are used by manufacturers to deliver long-life metal protection at a cost lower than existing materials. If you're planning with metal, plan with Kynar 500 . . . the finish with a future! Write for new booklet, plus names of leading fabricators supplying these beautiful, durable components. Plastics Dept., Pennsalt Chemicals Corporation, 3 Penn Center, Philadelphia, Pa. 19102.

**KYNAR is a registered trademark of Pennsalt Chemicals Corporation. KYNAR 500 is the fluorocarbon resin used by leading paint manufacturers in new 30-year finishes.*

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For solar control... sun screens of PLEXIGLAS



ARCHITECT: HARWOOD K. SMITH & PARTNERS, DALLAS, TEXAS

When the architect for the Texas A. & M. University Architectural School at College Station, Texas, considered the problem of solar control with sun screens, PLEXIGLAS® acrylic plastic was specified. Why? Because the light weight and impact resistance of PLEXIGLAS make possible a minimum structure to support the sun screens.

The ⅜″ thick transparent gray #2088 PLEXIGLAS sheet selected for these sun screens is one of a full range of tints that are available to satisfy a wide variety of light transmittance, glare and solar heat requirements.

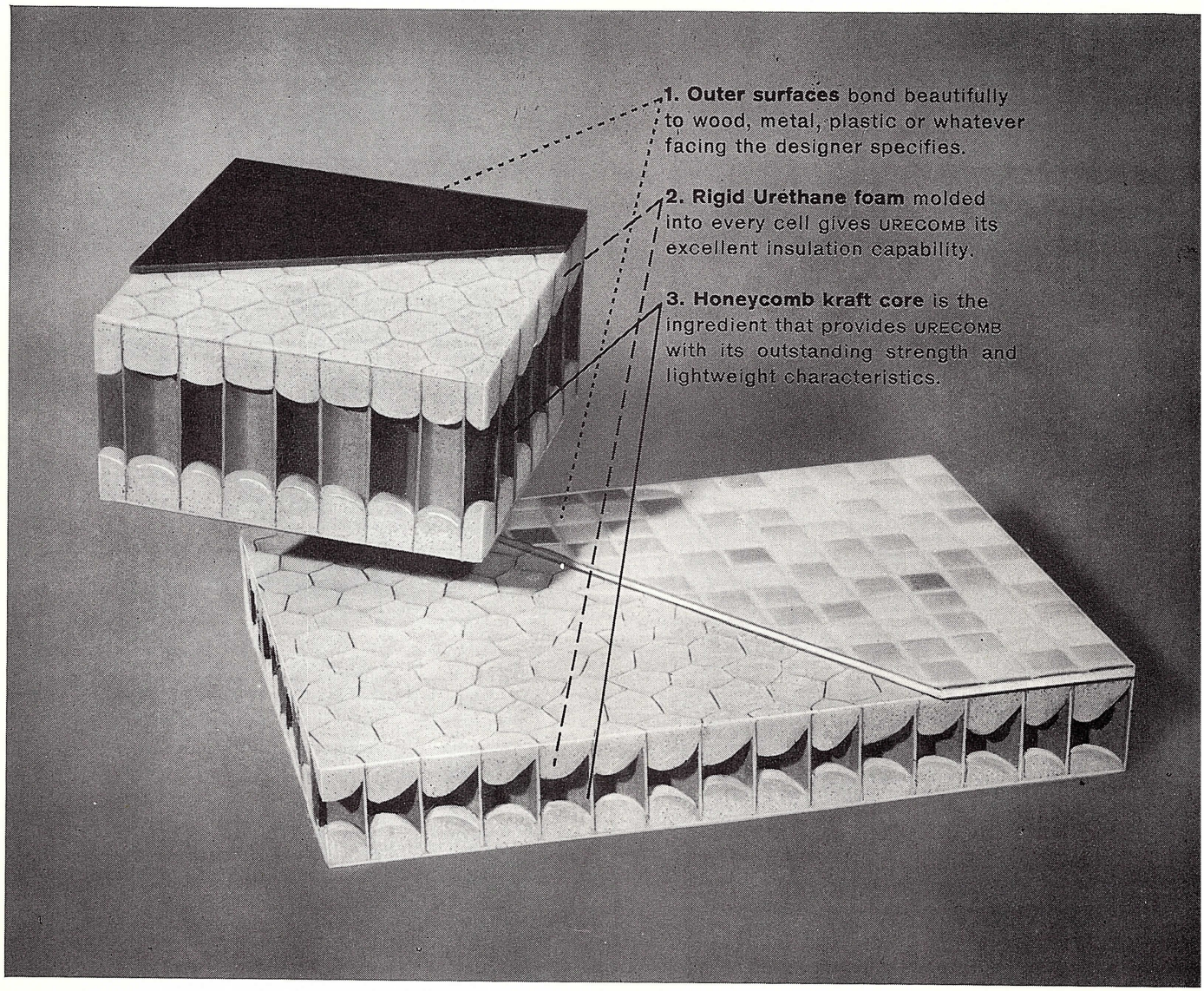
Get information and installation details on sun screens of PLEXIGLAS acrylic plastic. Write to Rohm & Haas for technical bulletins PL-591 and PL-592.

ROHM & HAAS
PHILADELPHIA, PA. 19105



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Meet URECOMB—the product of a happy marriage.

There has never been anything like it. Now, in one panel core, you have the insulation of Urethane foam plus the strength of kraft Honeycomb. Truly the perfect marriage.

This unique combination is called URECOMB—the ideal core material for floors, walls, ceilings, doors and partitions. In fact, URECOMB is made to order for any situation that calls for strong, lightweight and efficiently insulated panels.

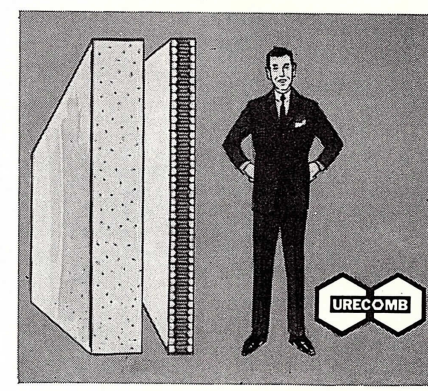
Outstanding insulation. URECOMB core has excellent heat resistance and an exceptional coefficient of thermal conductivity. The two-pound density of the rigid Urethane foam in URECOMB has a "K" factor of 0.12—which makes it about twice as effective as the next best insulator. This can allow reductions in panel thicknesses of up to 50%.

Is URECOMB economical? With trapped air between the two Urethane layers, it is not always necessary to fill the cells completely with foam to obtain the required amount of insulation. This is a real cost-saver.

It's strong and lightweight. The URECOMB core in a typical wall panel (2" thick) could have a compressive strength of up to *100 lbs. per square inch.* Yet it may weigh less than a half pound per square foot!

Flame resistance. The Urethane used in URECOMB is self-extinguishing —an extremely desirable characteristic in most applications. In sandwich panel constructions, non-fire retarding foams have been found suitable, since facings will obstruct surface flame spread and prevent air from entering and feeding the flame in the core.

Easy to install. URECOMB insulated panels handle easily, go up fast, save on shipping costs, and are extremely rigid. No wonder URECOMB is called the most efficient structural sandwich core ever developed.



Compare panel thicknesses! Insulation is the same—but URECOMB's unique combination of strength, light weight and insulating efficiency can reduce panel thicknesses (and weight) by as much as 50%! For information write *Dept.* AR *20.*

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For more data, circle 84 on Inquiry Card



New Kawneer UNIT WALL 1200 System assures leak-free performance! Even with Operating Vents!

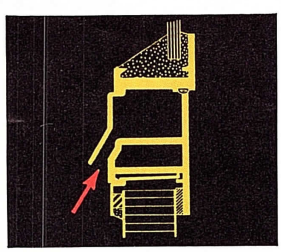
Outside, raging gale winds and rain! Inside, bone dry! Rigorous static test results assure that you can *now* specify an aluminum wall system *with operating vents* which provides weathering performance *better* than NAAMM standards. (See *Metal Curtain Wall Manual* by NAAMM, A.I.A. No. 17-A.)

Only Kawneer has the features that make this possible . . . 1) pressure equalization slot of Sealair Vents, proven by independent tests to be leak-proof even under hurricane conditions, and 2) split mullion construction of Kawneer UNIT WALL Systems takes thermal expansion stresses away from joint sealants; preventing possible damage and subsequent leakage.

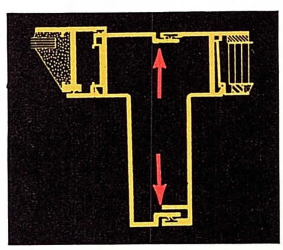
Such engineering leadership, plus Kawneer's experience on thousands of installations of both windows and wall systems, results in new UNIT WALL systems that out-perform any other, regardless of cost!

Permanodic* finishes, too! Kawneer's anodic hard color finishes can enhance your design while resisting abrasion, corrosion and ravages of time and weather.

If your next job is a one or two-story building, specify Kawneer Series 1200 or 3000. If it is a multi-story, specify Series 1250. For complete information on Kawneer architectural products and Permanodic finishes see Sweet's File 3a/KAW. Write for specification file, number WS-65.



Kawneer's Pressure Equalization Slot keeps water out. Pressure within the window sections is equal to pressure outside the building. No pressure difference—no siphoning action—no leakage.



Split Mullion, Unit Construction controls thermal expansion and contraction. No stress build up to damage joint seals and induce leakage. Factory fabricated units assure uniform quality control, speed erection.

Kawneer

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A KAWNEER ENTRANCE

Beauty that never fades..



Style Leader 125 Entrance Package—shown in Permanodic Medium Bronze No. 28.

and precision performance that never stops!

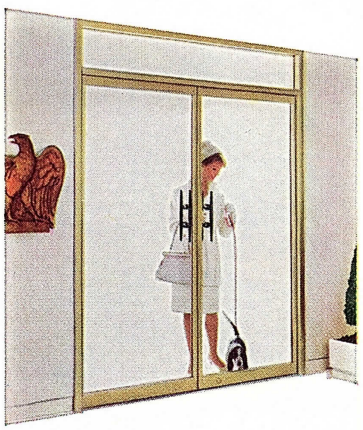
Now with **PERMANODIC*** *color*

Whatever you're planning—skyscraper, storefront, apartment, hospital, school or salon—Kawneer has an entrance package designed to meet your requirements for performance and appearance.

Independent laboratory tests and on-the-job installations prove Kawneer aluminum entrances last longer and are engineered to deliver superior performance—even after years of vigorous traffic and extreme weather conditions.

Now, there is an additional advantage to specifying Kawneer—Permanodic colors! These anodic hard color finishes add new warmth. And their beauty is *lasting*. Permanodic finishes are created from alloys, not dyes, and therefore are non-fading, resist corrosion and abrasion. These new entrance packages also offer exciting, new hardware options including Permanodic bars and new grips in teal, earth or black.

For superior performance, permanent beauty, and the savings these features afford, specify a Kawneer entrance package. Write for specification file, number P. E. 64, or Sweets File 16 E/KA.



Full Vision 128 Entrance Package—
shown Permanodic Light Bronze No. 26.



Narrow Stile 190 Entrance Package—
shown in Alumilite No. 204 A1R1.



Wide Stile 500 Entrance Package—
shown in Permanodic Black No. 29.



Extra Duty 350 Entrance Package—
shown in Permanodic Medium Bronze No. 28.

All entrances illustrated with concealed overhead closer. 190, 350 and 500 available with 5 closer options. 125 and 128 with concealed closer only.

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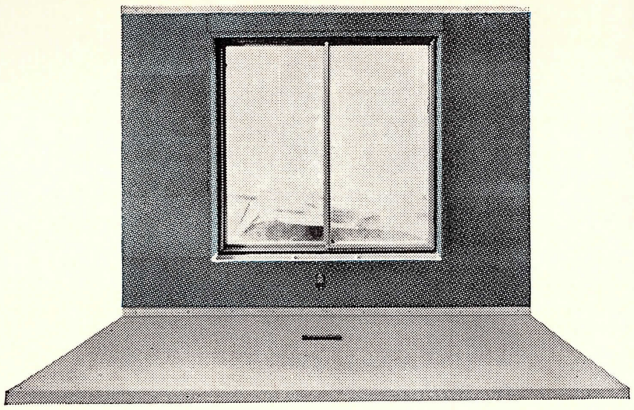
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NEW QUIET OPERATION. The Nesbitt Syncre has been sound-engineered to operate quietly efficiently at sound levels never before achieve heating, ventilating and air-conditioning equipr of this size and capacity.

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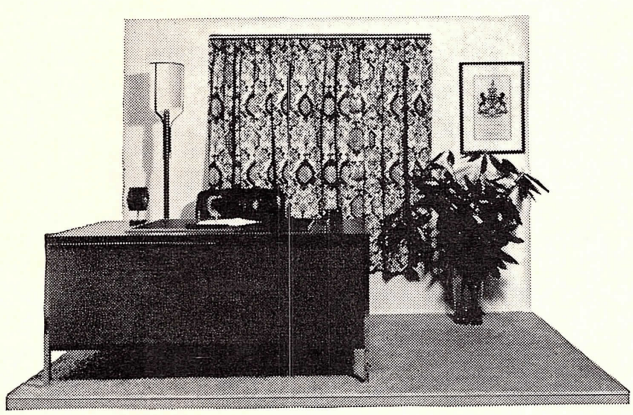
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Remember Styrofoam.

(Specify it to insulate masonry walls. Finish with wallboard or plaster.
Costs about the same as furred, uninsulated walls. Good deal?)

You bet! That's one of the things you'll like about Styrofoam® FR brand insulation—its versatility in accepting finishes for masonry walls.
Going to specify wallboard? Easy does it. Styrofoam FR applies quickly to walls with the help of Styrotac® bonding adhesive. No furring. Then wallboard goes up.
No nails to "pop" or holes to fill.
Or if you're specifying plaster, it can be applied directly to Styrofoam FR.
This insulation's textured surface provides an excellent key for wet plaster. And eliminates the need for furring and lathing.
Whichever method you use, Styrofoam FR resists the passage of moisture, eliminates the need for a vapor barrier, keeps its low "k" factor.
Permanently. The result is a solid, insulated wall at nearly the same cost as a furred, uninsulated wall.
For more facts worth remembering, see Sweet's Architectural File 10a/Do.
Or write us. The Dow Chemical Company, Plastics Sales Department 1311N5, Midland, Michigan.
Styrofoam is Dow's registered trademark for expanded polystyrene produced by an exclusive manufacturing process.
Accept no substitutes . . . look for this trademark on all Styrofoam brand insulation board.



O.K. Now forget it.

(You'll never have to worry about it again.)

DOW

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For more data, circle 62 on Inquiry Card

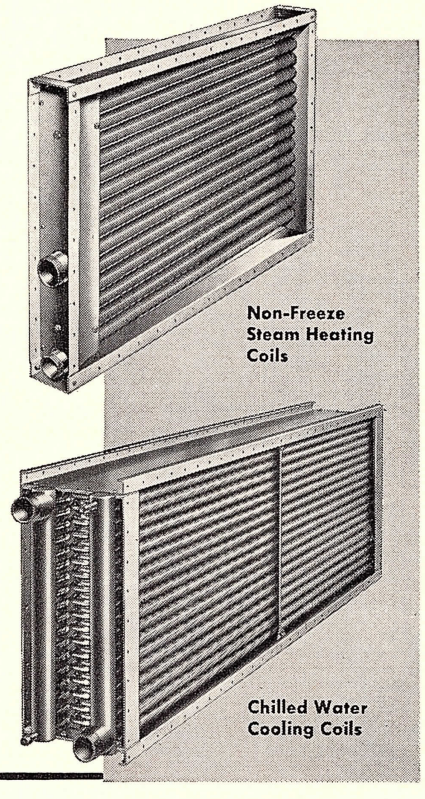


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ENGINEERING OFFICES IN PRINCIPAL CITIES

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School of Journalism, S. I. Newhouse Communications Center, Syracuse University, Syracuse, N.Y. Architect: King & King, Syracuse, N.Y. and I. M. Pei & Associates. New York, N.Y.; Painting Contractor: Hester Bros., Syracuse, N.Y.

Look how fine architecture is enhanced with the right color... by DEVOE!



Maybe there's an idea here for you, too.

Color was part of the original concept of this new building in the vast S. I. Newhouse Communications Center at Syracuse University. First-built of three planned structures, the School of Journalism combines artful use of color throughout the building with a series of geometric forms in a striking design which conveys both stability and force.

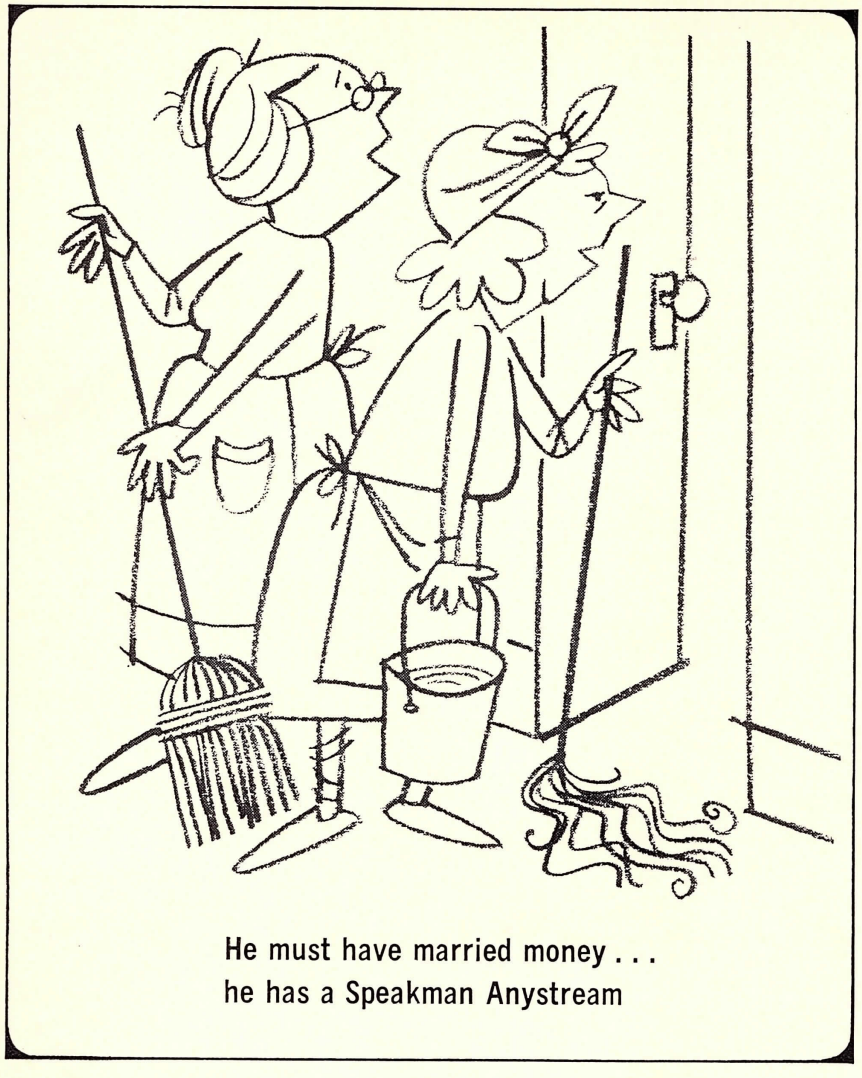
Our local representative—*the Man from Devoe*—provided his assistance on paint selection to the design staff. He gave useful advice on proper surface preparation and on application. And using our famous Library of Colors® system, he played a valuable part in color selection.

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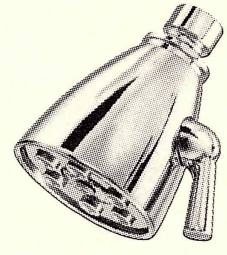
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He must have married money . . .
he has a Speakman Anystream

What makes the Anystream® the most wanted shower head in America? No longer is the bathroom a utility room. Today, it is the newest and most important status symbol in homes, apartments, and executive offices . . . making a Speakman Anystream a must. Alert architects and builders are taking full advantage of this strong trend to elegance and affluence. Get the facts, before you specify your next job.

SPEAKMAN ANYSTREAM: the only shower head that gives you instant choice of all kinds of spray, with a flick of the lever handle. Made of the finest quality chromium plated brass in elegant sculptured design, the Anystream gives full-pattern spray with no after-drip. Self-cleaning and no pinholes to clog. Easily installed in minutes and available with water-saving Autoflo® feature.



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See Sweet's Catalog 26b/sp

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Required Reading

continued from page 63

America's Urban Growth

THE MAKING OF URBAN AMERICA. *By John W. Reps. Princeton University Press, Princeton, N.J. 574 pp., illus. $25.00.*

This book is a basic history of one aspect of this nation's growth: "the planning of towns and cities founded from the time of Colonial settlement to the beginning of the present era." Emphasis is placed on town and city plans and the planning process.

The examination was directed to discovering to what extent city planning was rooted in national tradition and to analyzing the influences behind the formation of American cities. The United States is not a country where all cities were designed on a gridiron pattern, and the book provides some interesting documentation of that fact.

Undoubtedly this study will be a valuable reference to anyone concerned with American city planning. Hundreds of American communities are explored. Over 300 maps, plans and views are included.

Housing

HOUSING AND SOCIETY. *By Glenn H. Beyer. The Macmillan Company, 60 Fifth Ave., New York, N.Y. 10011. 595 pp., illus. $8.95.*

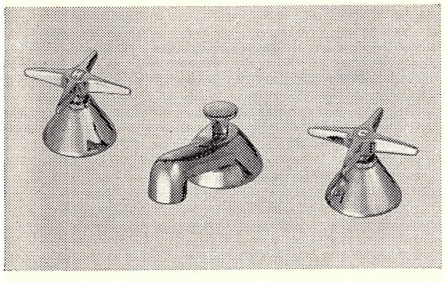
This is a compendium of the nontechnical aspects of housing. Although theories and concepts are dealt with, emphasis is given to their application.

The author starts with historical material concerning housing, families, and cities. Focus upon the housing market, financing, the provision of new housing, and the acquisition and consumption of housing follows. A section is devoted to the problems of the central city, suburbs and rural areas, and facilities for the aging. Attention is given to the role of the government in the solution of these problems. Future housing need and research, and the international picture—housing in Western Europe and in the developing countries—are

continued on page 101



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Renoir in the living room and
Diamond 75 in the bathroom



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for Slim Beauty

The New Diamond 75 expresses the rare combination of functional design and sculptured beauty. Add the famous Speakman quality and you have the most exciting and popular lavatory and shower and bath fixtures of the year. All Diamond 75 parts that are subject to daily wear are removable and renewable, assuring years of trouble-free operation. Before you specify fittings at any price, be sure to see the Diamond 75 line . . . you'll be surprised how such quality can be priced so competitively.

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Required Reading

continued from page 100

presented and evaluated.

This volume should prove useful to students and teachers in the field as well as to architects and agencies concerned with housing.

Books Received

NEW SWISS ARCHITECTURE. *By Alfred Altherr. Hasings House Publishers Inc., 151 E. 50th St., New York, N.Y. 10022. 212 pp., illus. $16.50.*

FOUNDATION CONSTRUCTION. *By A. Brinton Carson. McGraw-Hill Book Company, 330 W. 42nd St., New York, N.Y. 10036. 424 pp., illus. $16.00.*

CRISIS IN OUR CITIES. *By Lewis Herber. Prentice-Hall Inc., Englewood Cliffs, N.J. 07632. 239 pp., illus. $5.95.*

SONNETS FOR MY CITY. *By Arthur Cort Holden. Schulte Publishing Company, 80 Fourth Ave., New York, N.Y. 10003. 231 pp. $8.50.*

KEY MONUMENTS OF THE HISTORY OF ARCHITECTURE. *By Henry A. Millon and Alfred Frazer. Henry N. Abrams, Inc., 6 W. 57th St., New York, N.Y. 10019. 536 pp., illus. $17.50.*

WATER IN INDUSTRY. *By the National Association of Manufacturers, 277 Park Ave., New York, N.Y. 10017. 81 pp. Paperbound, $2.00.*

CPM IN CONSTRUCTION MANAGEMENT. *By James J. O'Brien. McGraw-Hill Book Company, 330 W. 42nd St., New York, N.Y. 10036. 254 pp., illus. $10.75.*

MATERIALS IN MODERN ARCHITECTURE: DESIGN WITH GLASS. *By John Peter. Reinhold Publishing Corporation, 430 Park Ave., New York, N.Y. 10022. 159 pp., illus. $12.00.*

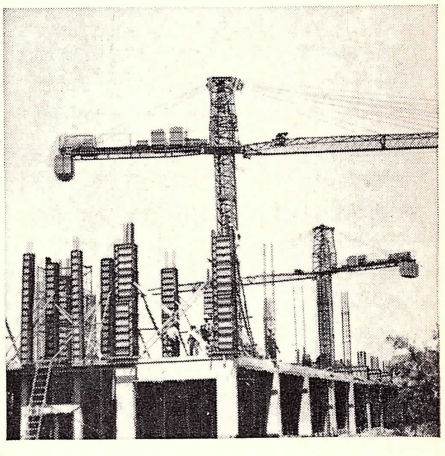
COLLECTED PAPERS ON ACOUSTICS. *By Wallace Clement Sabine. Dover Publications, Inc., 180 Varick St., New York, N.Y. 10014. 279 pp., illus. Paperbound, $2.00.*

THE CRITICAL PATH METHOD. *By L. R. Shaffer, J. B. Ritter and W. L. Meyer. McGraw-Hill Book Company, 330 W. 42nd St., New York, N.Y. 10036. 212 pp., illus. $9.50.*

HUMIDITY & MOISTURE, *Volume II. By Arnold Wexler. Reinhold Publishing Corporation, 430 Park Ave., New York, N.Y. 10022. 634 pp., illus. $27.50.*



FAST SLAB FORMING
SYMONS SLAB SHORE SYSTEM
SPEEDS HIGH RISE ERECTION



Using the Symons Slab Shore System for all floor slab forming, the concrete sub-contractor on the new Hague Towers luxury apartments in Norfolk, Virginia, completed each 15,500 sq. ft. floor in a 6-day period.

The contractor divided total floor area by three, and worked pours in sequence, stripping the first pour at the same time the third pour was finished.

In addition to forming each of the 20 floors on the high rise building, the Slab Shore System served as bottom support for the spandrel edge-beam on the second floor.

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Contractor on the job was Standard Construction Co., of Washington D.C. The concrete sub-contractor was Con-Corp., Inc., of Rockville, Maryland. The architects were W. L. Mayne & Associates, of Alexandria, Virginia.

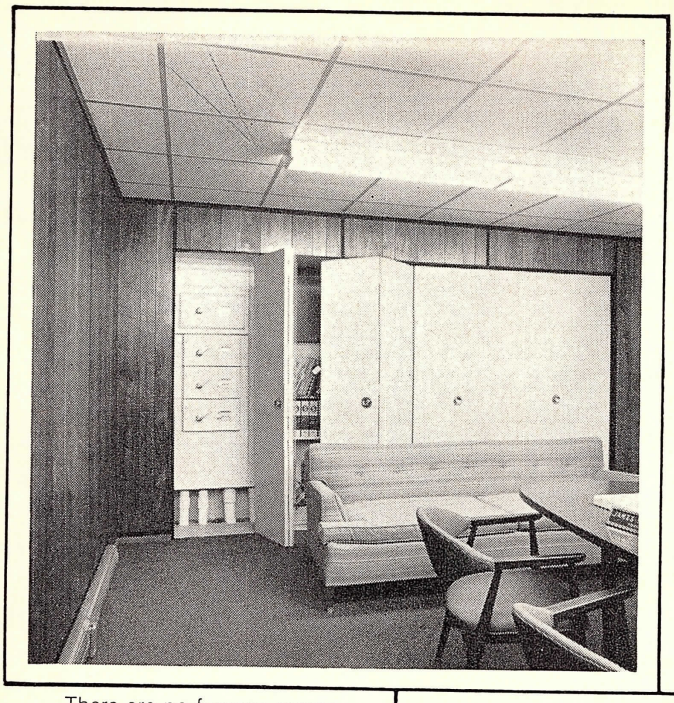
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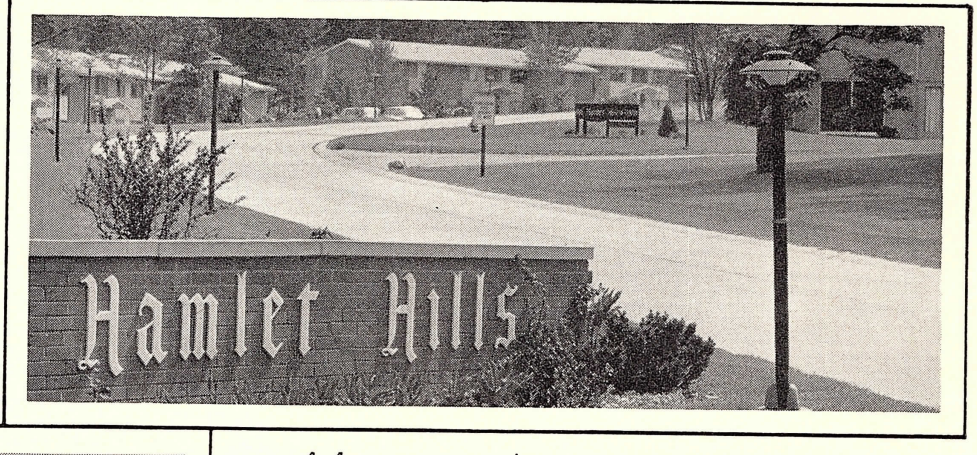
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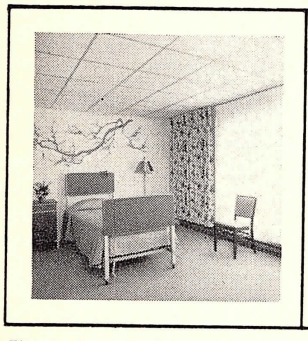


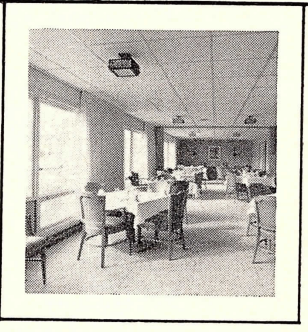
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dramatic proof:

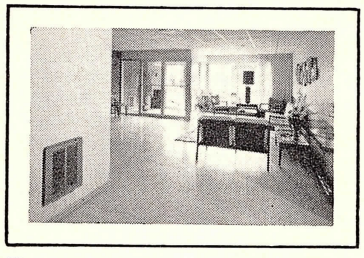
electric heat conserves space







Electromode Low Level electric baseboard heaters provide individual room temperature control for occupants of Hamlet Hills garden apartments. They are also used in the private rooms (left, above) and dining room (right above) of the health center.



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HOW TO STAY SMALL AND PROVIDE BIG-FIRM SERVICES

The firm of Robert E. Alexander, F.A.I.A., and Associates works in combined office space with independent engineering firms, retaining the advantages of small size while gaining in-house engineering capability

How can a small architectural office offer the advantages of integrated, in-house, engineering services for large jobs without getting involved in the administrative problems of a huge staff? The *in-house* capability is regarded as an important qualifying feature by certain clients, especially by government agencies. It was this stipulation that posed a problem for the 12-man, Los Angeles office of Robert E. Alexander, F.A.I.A., and Associates. The problem was solved in a way that has worked well—and without the addition of an engineering staff to the Alexander payroll.

The problem arose about 15 years ago during interviews with the Naval Selection Board about a large hospital project. To the board's questions as to whether the Alexander firm was prepared to offer integrated services, the obvious answer was: yes. They were prepared not only with the usual architect-consultant relationships but in the not-so-usual sense that they had been working with the same engineering consultants for many years. It turned out that the Navy was primarily interested in services "under one roof," by which they actually meant "on one payroll."

Study of the project under consideration—and some others that were in work at the time—showed that the Alexander firm would have had to add about 200 men to the payroll to support adequate engineering departments. Mr. Alexander could see that any such move would cast him inevitably and exclusively in the role of administrator, while his real preference and fullest intent was to remain in close touch with architectural design procedures.

The idea of assembling the three engineering firms (structural, mechanical and electrical) under one roof with the Alexander firm with whom they had been working was explored. Each engineering firm insisted that its independence and freedom to serve other architects must be maintained. It was ascertained, however, that there would be no conflict or embarrassment about conferences with other architects on the proposed premises, because practically all such conferences are normally conducted in the architects' own offices. In practice over the years about half these engineers' work is for other architects. With complete separation of telephone, accounting and other services, it seemed feasible to make the contemplated move.

Working Agreement

Accordingly, an operating agreement was drawn up, and the four firms arranged themselves in a single, large office space. There were not even partitions separating the firms from one another; a mixed blessing that simplified communication and created a visual impression of considerable manpower. The operating agreement stipulates that: (1) the Alexan-

ler firm is free to work with other consulting engineers; (2) the engineers can work for other architects, but; (3) they may not be listed as Engineering Associates in the brochures or work proposals of other architects; (4) the Alexander firm may so list the engineering firms in brochures and proposals. All agreements with clients stipulate that the engineers are not to be regarded as an "expense" item. They are specifically listed as professional collaborators.

There was also agreement among all four firms that one principal (the architect in this case) should be empowered to negotiate with clients for the whole group. To make such an agreement operable, the negotiator must have the full confidence of the group, and fee structures must follow a regular pattern of division among participating firms. Thus, if fees are charged as per cent of construction cost, each firm knows exactly what share he will receive and relies on the architect not to make a bad deal. If a lump-sum contract is to be negotiated, the operating framework and general order of amount are agreed upon and checked with participating firms before final stipulation of the sum.

For a great deal of the work in this office, the formula for allocation of fees recommended by the Los Angeles school board is used as the basis for division among the professions. Certain clients, such as U.C.L.A., may reserve the right to approve selection of engineers. In such cases, the long association of this group of firms has been a factor in obtaining unquestioning approval of the association, while flexibility of their working agreement would readily accommodate any exception.

Advantages

Physical proximity of the participating firms has had many advantages. The time saved through ability to reconcile architectural and engineering differences as work proceeds is an important advantage. Architects can simply walk over to boards where engineering work is in process and develop integrated systems without lengthy trial and error methods. Change orders are kept to a minimum. Mr. Alexander believes the arrangement works faster than many conventional architect-consultant relationships. He cites the example of a $2 million job developed from design contract to working drawings in less than a year.

Independence of the engineering firms provides other advantages. The quality of engineering services is maintained at a high level; partly because of the continuing variety of work provided by service to other architects; partly by the inherent quality and enterprise of independent engineers. Independence also encourages the engineers to approach each job with a critical eye. On many occasions, they have argued for certain qualities of structure or system with a vehemence that might have been lacking in an employer-employee relationship.

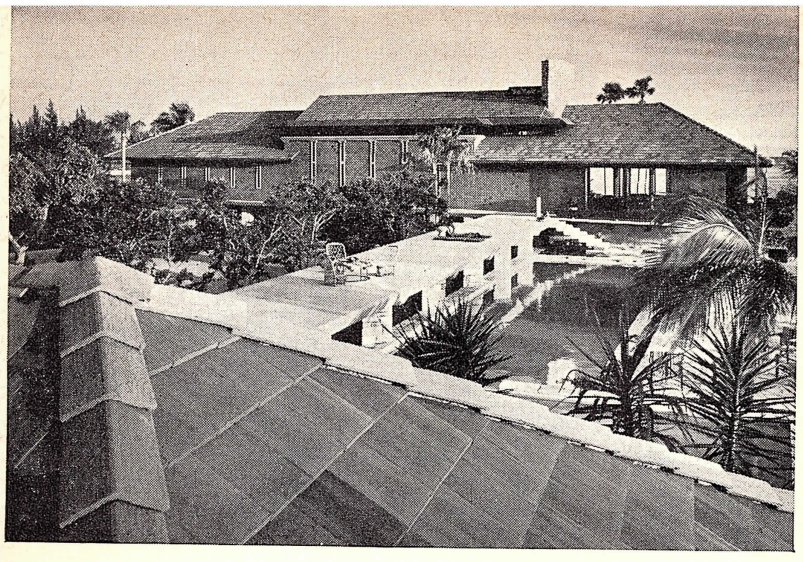
There is some flexibility in the handling of common problems in such a setup. Rent for office space, for example, was at first paid by the architect who then sublet space to the engineers. This worked well in the original quarters where there were no partitions separating firms from one another. In present quarters where partitions do exist and space requirements were fairly well established prior to occupancy, the engineers pay directly to the landlord.

The temptation to pool certain operations such as cost estimating or drafting capability has been resisted on the grounds that clear cut responsibilities prevent misunderstanding. Each architect associate in charge of a job is responsible for the detailed quantity surveys and cost estimates required for that job. This arrangement exerts a salutary discipline on the late-blooming creativity that can add so substantially to the cost of producing a design. It also permits creativity to be exercised to its fullest reasonable extent under the critical eye of the associate in charge.

Engineers do purchase occasional secretarial and typing services from the architect or from each other. There is also common access to blueprint facilities which are charged on a prorated basis. Drafting time is not ordinarily exchanged between firms, but there is some opportunity to do so if a shifting work load should warrant such an exchange. Conference room and reception areas are used in common.

One of the problems that can develop in such an aggregation of independent operators is growth. Engineers can develop the volume of their business to the point where they may have to move. So far, this has affected only the original electrical engineer. The remaining structural and mechanical organizations have been able to expand into space vacated by the electrical firm. And the possibility of further expansion—and re-establishment of the electrical engineering capability—exists in the building now occupied.

The advantages of integrated service have been achieved without forcing the architect to develop a huge organization with all the administrative and acquisition activities needed to maintain a formal engineering department. Mr. Alexander can still find time for close work at the board. He is free from the administrative headaches implicit in large a-e organizations. The chief advantage, as Mr. Alexander sees it, is in service to the client. The architect retains his personal contact while at the same time providing the augmented engineering service characteristic of modern building complexity. Engineering firms currently associated with the Alexander firm are: Parker, Zehnder and Associates, structural engineers; and Boris Lemos, mechanical engineer.



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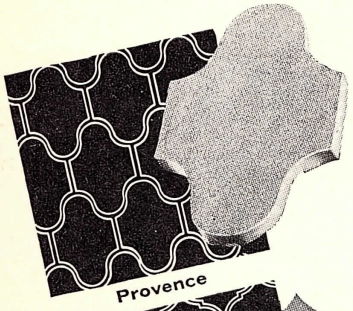
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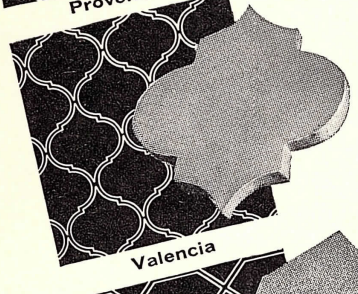
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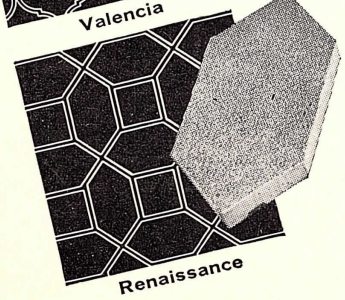
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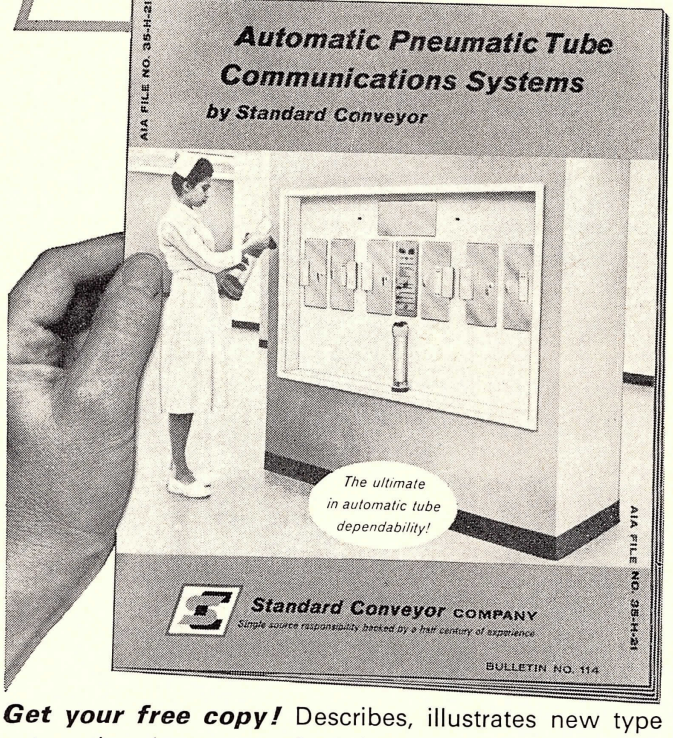
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FORM FOLLOWS FACTION

Invitation to an architectural faculty to re-examine and question the basis of today's architectural training

By Gregory Ain, head of the Department of Architecture, Pennsylvania State University

To define and shape a really effective program of architectural education, it may be helpful to re-examine and question the basis of prevalent architectural training. What is lacking that we can provide? What is useless that we may discard? What changes shall we make in method, in content, in pace, in direction, in challenge, in promise?

Our school is not alone in seeking answers to these universal questions. Many are adding one or two years to their course. Almost all are revising their curricula. Offerings in the humanities and the social sciences are being broadened. Courses in physical technology are being advanced and reinforced. Art history is being probed anew for testimony and ransacked for inspiration. Outstanding architects are conscripted to fly from campus to campus. Mechanical aids, from computers to binaural teaching machines are being introduced.

A school may have embraced all of these excellent particulars and incorporated them in its program and its catalog. But the school's success will ultimately be attested only in terms of the unmeasurable individual growth and eventual contribution of its students. This individual growth can be best stimulated by personal guidance and nurtured by personal experience. These are slow and unspectacular means, and may be invisible to evaluation committees and accrediting boards. But these will of necessity be our principal means.

Unquestionably, our methods can be improved, but just how shall we modify them to be most effective for future conditions unpredictable in any area at all—technological or organizational, political or economic, social or psychological? Will the architects of tomorrow be replaceable parts of machines, the displaced antecedents of machines, or the confident masters of machines? Only the last alternative is worth considering. And for that status, we need not be too concerned with the exact nature of the machines technological or economic or political.

Our educational assignment is the teaching of design, based upon a philosophy of architecture. What do we hope to accomplish, knowing that creativity cannot be taught? Artists are born—not made in school. Talent cannot be transmitted, even by a teacher supremely endowed; although personal mannerisms of style, unfortunately, are frequently communicated to a student. And yet we can, in sincerity and in confidence, undertake to improve the student's ability to design. We will never tell him *how* to design, but we shall still insist that his major design decision be based upon reason, and rarely upon caprice. Th infrequently encountered genius in our school wi never be harmed or thwarted by this insistence, jus as the less talented student will never be helped b a demand for original creativity. But both will profi by practicing discipline.

The function of the design critic is to develop th student's judgment, craftsmanship and responsibil ity—to train him to become his own unbiased crit ic. For this task the critic must have clear standard of judgment himself—standards based upon objec tive considerations and never contrary to commo sense.

Form Follows Faction

Sound standards of architectural excellence will oc casionally be in conflict with prevailing adulatio of momentarily conspicuous leaders. This should no be evaded in the classroom, and may well be the sub ject of discussion. Students should be cautioned against the seductive attraction of groundless novel ty, and the over-stimulation of this kind to be found in every issue of the architectural press. Today, much of form follows faction, and contending factions make confusing but beguiling appeals for the student's esthetic conversion.

Above all, the student must learn that good architectural design is derived from the solution of a problem, and does not predetermine the solution. He must be urged constantly to be responsive to the stimulation inherent in the practical requirements for each design problem although it is not the duty of the design critic to check errors of fact in the student's research. The critic must reiterate constantly the architect's prime duty of serving the human need for which the building is initiated.

The architect who strains for an original dramatic effect will probably produce only another self conscious tour de force. But an unprejudiced study of the needs of the problem may lead to a unique and beautiful solution. One of the most exciting buildings of recent years is Saarinen's hockey rink at Yale. Even when seen for the first time, this extraordinary jewel of a building seems the inevitable solution of a clearly stated problem. And with time, it never becomes boring. The imaginative integration of purpose, structure, and form was undoubtedly

hieved by concentration on the basic essentials of e problems and not by dogged clinging to an early reconception.

Perhaps a major lesson to be learned in the design class can be summed up thus: Significant Form not, like the Holy Grail, an ideal to be sought as n end in itself. All form in architecture is significant; and the significance is often quite different om what the designer may have intended.

It is a truism that all art which has flourished in ny era has reflected the values and the spirit of the ociety from which it sprang. Much more than it xpresses its architect, a work of architecture expresses some phase of the culture that produced that rchitect. What is one incidental meaning, to educaors, of mid-20th-century architecture? Surely no age efore ours has produced so varied a medley of architectural languages, styles and philosophies. Excluding Internationalism, Functionalism and Constructivism which though still represented are regarded as outmoded, we are constantly presented with concurrent examples of arbitrary conflicting nd exhibitionistic styles. How many impassioned apers have been written, extolling the esoteric ystique of yet a newer Prophet of Form, whose reations, to the uninitiated users of the buildings eem to disavow all real human needs?

Can there be a common lesson in these polyglot leclarations? Doesn't each of these architectural tatements contradict all of the others? No. Superficially varied though they may appear, many share single central theme. Their *a priori* emphasis on onspicuous uniqueness unites them. It is not fair to udge or blame the initiators or the followers of these phemeral styles for what they reveal innocently, nconsciously and inevitably of their time. For many re candid examples of what we have been taught to seek—they constitute Significant Form. They bespeak a pervasive contemporary phenomenon, the subject of much concern among psychiatrists today—alienation. This is a malady which may abound in a society of high intelligence and achievement.

Alienation is a state of the individual in doubt of his individuality, fearing submergence in an aimless multitude, lacking identification with a constructive social entity whose goal and strength and dignity he shares.

> The alienated individual knows of no way to lift his ego and his self esteem except by thrusting himself above those around him. Creativity, to the mature individual, is a gift that enhances the power of giving. To the alienated, creativity is a weapon in a personal contest, where victory is never long sustained.

It is not suggested that our education has engendered a social ailment. But it may well have contributed to it, in common with many other unsuspecting influences of our time. Often the classroom is a setting for intensive year-long personal competition in which the prize of supremacy is thought to be essential to survival. The relationship between classmates may be analogous to that of a Roman gladiators' camp —momentary friends are rivals, and then potential enemies. The tensions and anxieties accompanying this conflict, possibly continuing into adult practice, are inimical to learning and harmful to mental health. The nervous energy dissipated in sustained personal competitiveness is doubly lost to the student, and is stolen from the society he seeks to serve.

Competition may serve in many areas as a constructive stimulant to effort. Between schools, it may be employed effectively. But in the world of architecture, the ability to cooperate is increasingly a major necessity. And within the design classes, the spirit and practice of cooperation should be encouraged, and problems should be designed so as to multiply opportunities for interaction and mutual support.

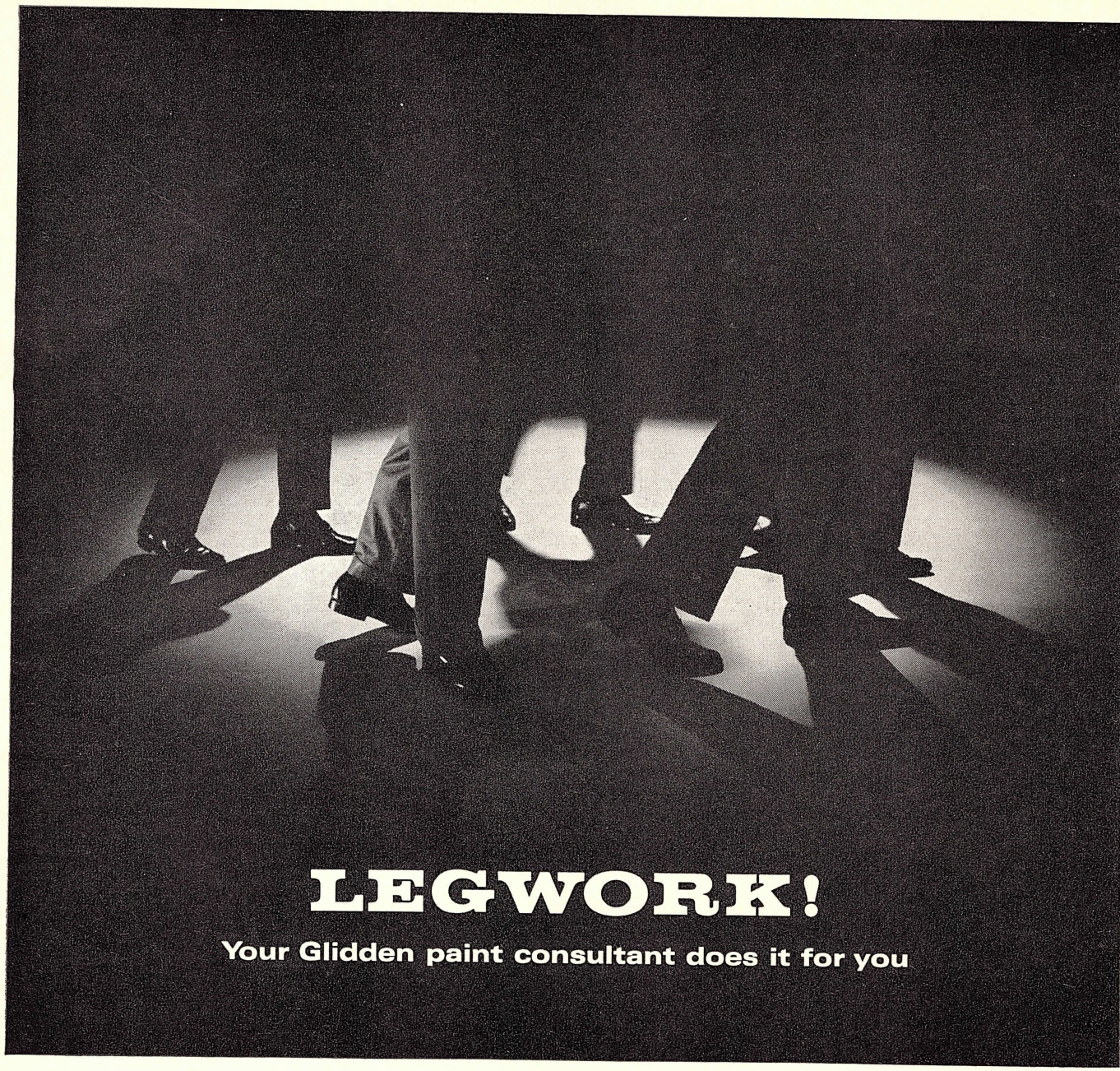
In past periods of high architectural achievement, the style of building at any one time varied comparatively little. The prevalence of a typical form was no restraint upon creativity, and implied no lack of imagination. It simply testified to the happy evolution of a language of form, adequate and eloquent, always appropriate and universally intelligible. Those epochs which typically produced great architecture were distinguished by strong, constructive, unifying social forces: devotion to the city-state in Athens, devotion to God in Medieval Europe, devotion to a prince in the Renaissance, and to a philosophical principle in 17th-century Japan.

Our difficulty until now has been that we were struggling to create an evocative style, a great symbol with no widely shared clear purpose to inspire it.

Toward a Golden Age

As we proceed to recognize and acknowledge an inspiring purpose, the appropriate forms will be discovered and countless architects will collaborate to bring these forms to perfection.

We are undoubtedly on the threshold of such a period today, in many parts of the world. More and more people are coming to feel passionately the need to make our cities alive and beautiful. In this country it has been proposed as a national objective by citizens' groups, women's clubs and political leaders. This must become a national and an international goal, with all of the drive of a great moral crusade. It is an issue upon which all people can be united, and by which all will be stimulated and strengthened. No more exciting theme for constructive world-wide collaboration and competition can be imagined. And as the ancient drives of fear and hostility recede, the goal of universally beautiful urban environment will absorb, employ and illumine all the talents of mankind, and give rise to a real golden age.



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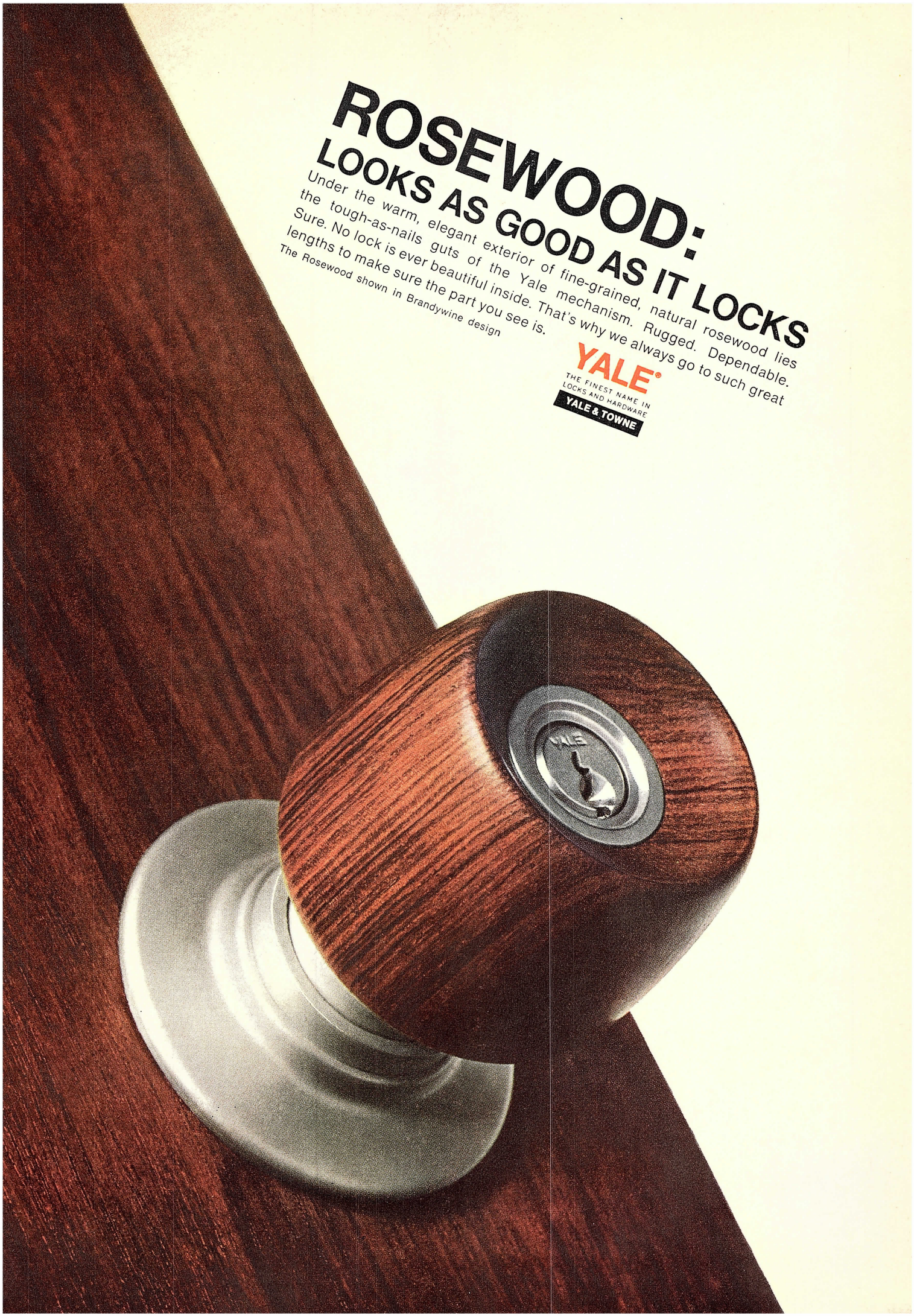
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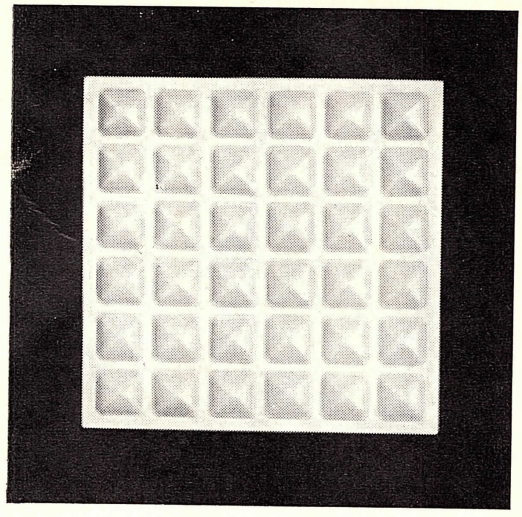
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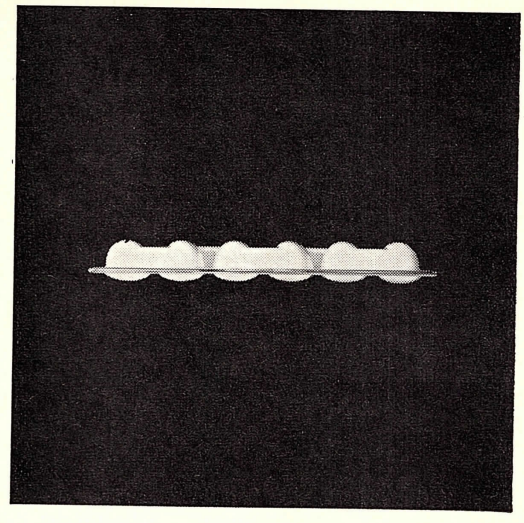
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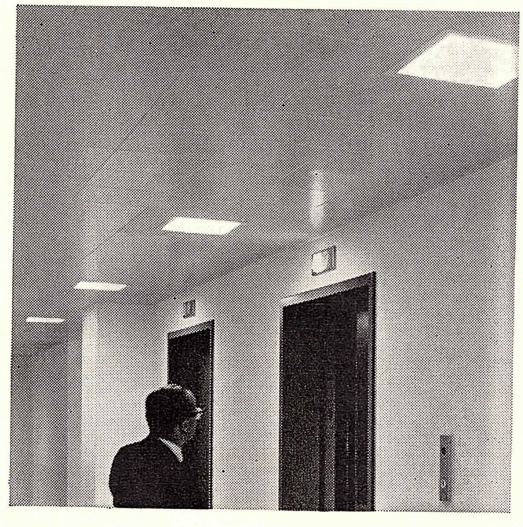

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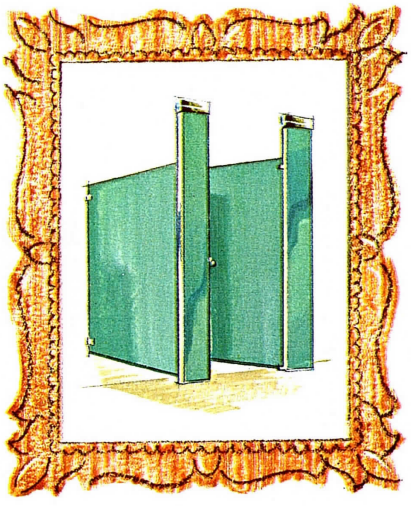
Now. Available from your General Electric Large Lamp Agent. Many commercial fixtures for the Panel F lamp are available, too. Find out how you can use the Panel Fluorescent lamp wherever efficient, concentrated lighting is required. Write General Electric Company, Large Lamp Department C-510, Nela Park, Cleveland, Ohio 44112.

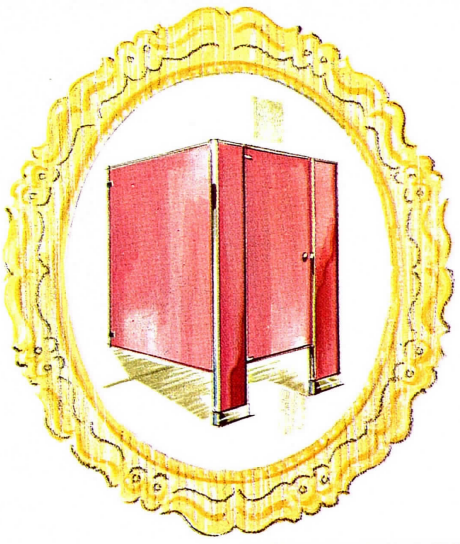
Progress Is Our Most Important Product

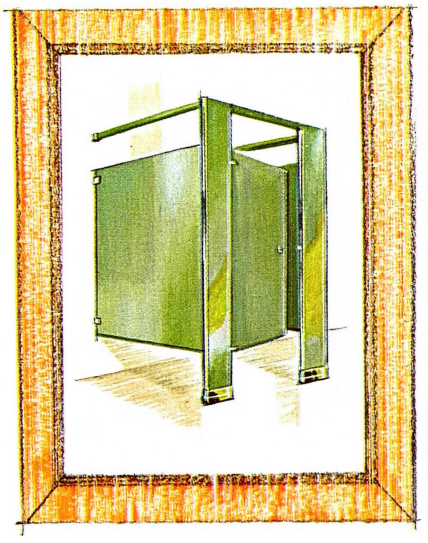
GENERAL ELECTRIC

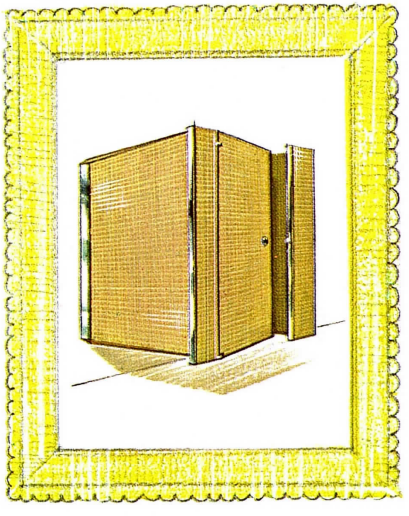
For more data, circle 78 on Inquiry Card

For more data, circle 80 on Inquiry Card →





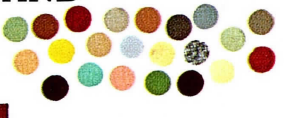




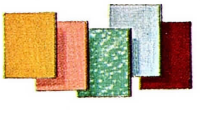
THIS FAMILY OF Sanymetals

sometimes mistakenly called *toilet compartments or toilet partitions* ···

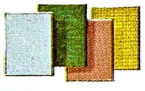
IS AVAILABLE IN THE WIDEST RANGE OF MATERIALS AND FINISHES • BAKED ACRYLIC FINISHES IN 22 COLORS



PORCENA *(porcelain on steel)* IN ALMOST UNLIMITED



RANGE OF COLORS AND TEXTURES • DUPONT * Tedlar® COATED VINYL • RIGID PLASTIC



LAMINATES • STAINLESS



STEEL



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ONLY Sanymetal® MAKES Sanymetals

Registered Trade Mark



Under-construction view of the circular Fine Arts Building of the Northwest Missouri State College, Maryville, Missouri, with Sheffield Open Web Steel Joists in the flooring system.

Sheffield Open Web Joists offer engineering solution on circular building

Basic design determined for the Fine Arts Building of the Northwest Missouri State College was a circular structure. A problem in the engineering of the flooring system was the triangular-shaped segments formed by the steel framework, and the constantly increasing spans required from inner to outer rings.

In the ultimate solution, 62 tons of Sheffield Open Web Steel Joists—about 1100 joists—were installed in the flooring system of this building. Other materials would have required more complicated framing and varying floor thicknesses.

Commenting on the problem, Herschman & Douglas, Architects and Engineers, said, "After a considerable amount of engineering analysis and study as to the relative costs, we concluded that steel framing and bar joist floor framing was the best system we could devise. We were also able to make full use of the open web spaces for the wiring and plumbing systems, thus decreasing the overall height of the building. After watching the speed of erection of this system, we are certain our decision to use steel was the correct one."

For complete data on Sheffield Joists—both J-Series and the high-strength H-Series—write for our latest catalog. All Sheffield Joists meet specifications of the Steel Joist Institute. **Armco Steel Corporation, Steel Division, Dept. W-985A, 7000 Roberts St., Kansas City, Missouri 64125.**

ENGINEERS-ARCHITECTS: Herschman & Douglas, South St. Joseph, Mo. CONTRACTORS: Glaze Construction Co., St. Joseph, Mo. FABRICATORS and ERECTORS: St. Joseph Structural Steel Co., St. Joseph, Mo.

ARMCO STEEL

For more data, circle 86 on Inquiry Card

For more data, circle 89 on Inquiry Card

Terrazzo installation made with ATLAS WHITE portland cement. Terminal Building, C. E. Hancock Airport, Syracuse, N. Y. **Architect:** Ketcham-Miller-Arnold, Syracuse. **General Contractor:** Vincent J. Smith, Inc. **Terrazzo Contractor:** D. A. Lanzetta Marble Co., Albany.



More than two out of three U.S. airports choose terrazzo for long-range economy

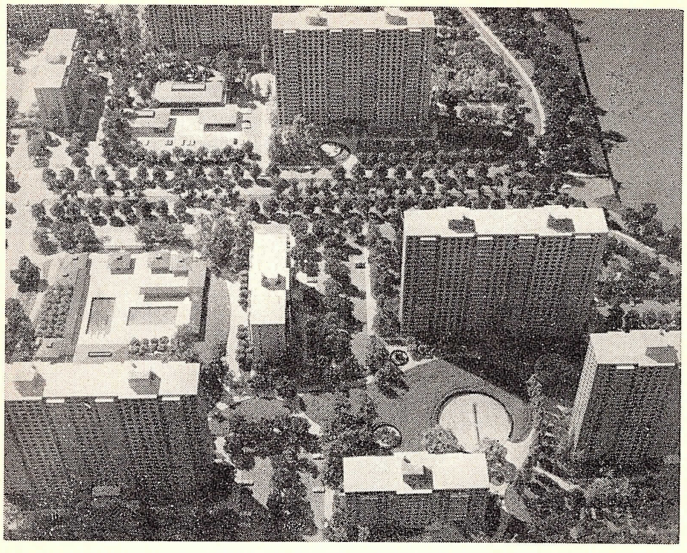
The two levels, stairs and even the baggage-pickup platform at this busy New York State air terminal are surfaced with jointless terrazzo. Concrete-strong terrazzo will never curl, lift or wear thin. It never needs waxing or buffing. Studies show that terrazzo saves as much as 50¢ per square foot yearly in maintenance costs alone. Over a 10-year period, its total cost, including installation and maintenance, is lower than for asphalt or vinyl tile. And terrazzo still has a lifetime of service ahead of it. ■ When you plan heavy-duty terrazzo floors, wainscots, counters, stairs, specify a matrix of ATLAS WHITE portland cement. Its uniform whiteness brings out the true color of aggregates and pigments. Ask your local terrazzo contractor. Or write Universal Atlas Cement Division, United States Steel, 100 Park Ave., New York, N.Y. 10017.

USS Atlas WHITE CEMENTS

"USS" and "Atlas" are registered trademarks.

WT-105

For more data, circle 99 on Inquiry Card



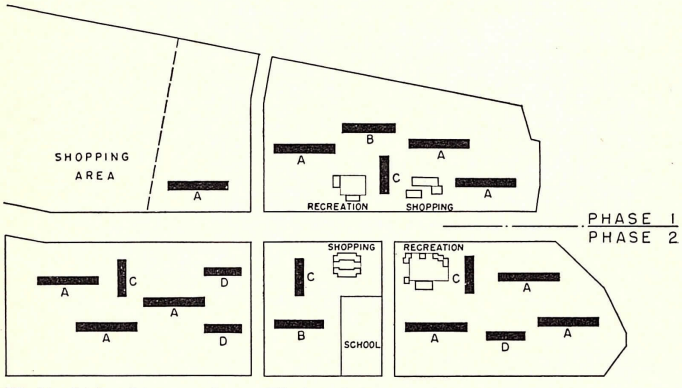
HOUSING PROJECT WILL HAVE 19 APARTMENT BUILDINGS

Park Shore Village, residential development on a 165-acre tract in Brooklyn, New York, will include 5,866 apartments in 19 apartment buildings, recreation buildings, shopping areas, and a school. The project, which is to cost over $160 million, will be constructed in two phases—the first phase including six of the apartment buildings, most of the shopping areas, and a recreational facility.

First phase financing will be provided by a $57,825,000 mortgage loan from the New York State Housing Finance Agency, and $6,425,000 which will be invested by the developer, the Carnavon Corporation.

Architects for the housing units are Lama, Proskauer and Prober. In charge of site design and landscape architecture is the firm of Royston, Hanamoto, Mayes, and Beck. Architect for the service and recreation buildings is George Matsumoto, and architect for the shopping areas is Lathrop Douglass. Engineers are the Blauvelt Engineering Company and Day and Zimmermann, Inc.

The project has been designed to create a suburban atmosphere, with land coverage averaging seven per cent, and extensive landscaping, including children's play areas adjacent to each apartment building. Apartment structure will vary in height from nine to 21 stories, and rents will average $29.92 per room per month. Some of the commercial structures will be three stories high, with the remainder being one story.



Unit 'A'—21 stories; Unit 'B'—21 stories; Unit 'C'—13 stories; Unit 'D'—nine stories

Construction Details

for LCN overhead concealed door closer installation shown on opposite page

The LCN series 2010CP closer's main points:

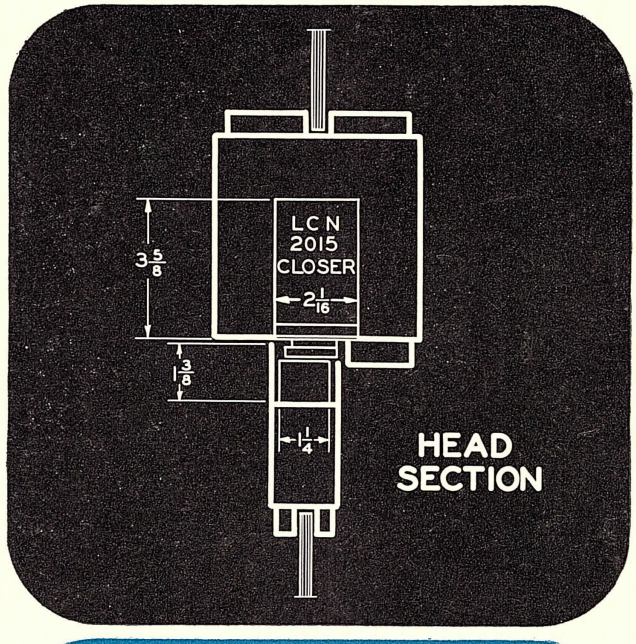
1 Efficient, full rack-and-pinion, two-speed control of the door

2 Mechanism entirely concealed in head frame and top of door; arm shows when door opens, is hidden when door is closed.

3 Hydraulic back-check cushions door if thrown open violently, saving door, wall, etc.

4 Hold-open available at 75, 85, 90 or 95 degrees setting.

5 Closers are made for heavy duty and long life



Comprehensive brochure on request—no obligation or see Sweet's '65, Section 19e/Lc

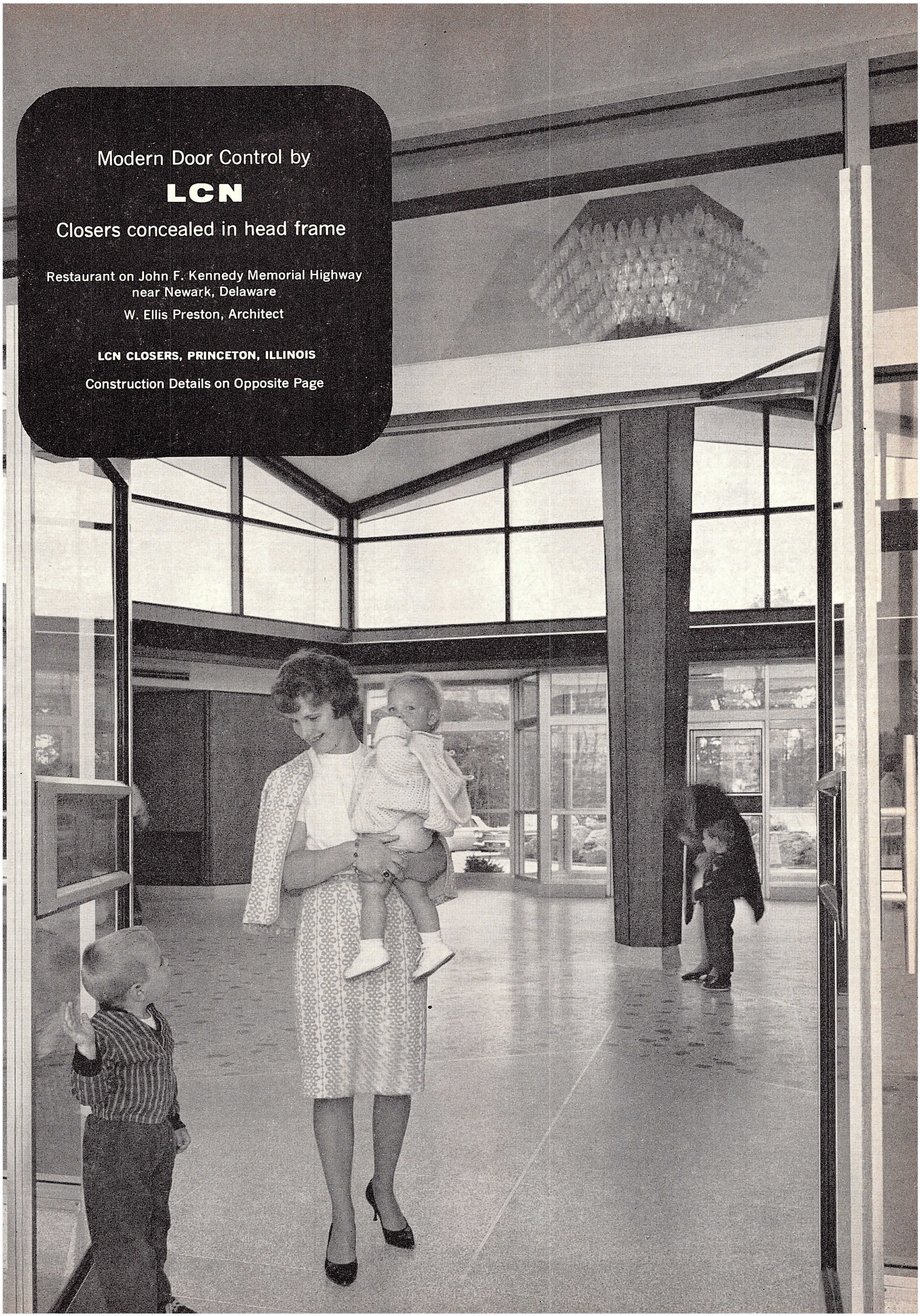
LCN

LCN CLOSERS, PRINCETON, ILLINOIS

A Division of Schlage Lock Company

Canada: LCN Closers of Canada, Ltd., P. O. Box 100, Port Credit, Ontario

For more data, circle 100 on Inquiry Card


Modern Door Control by
LCN
Closers concealed in head frame
Restaurant on John F. Kennedy Memorial Highway
near Newark, Delaware
W. Ellis Preston, Architect
LCN CLOSERS, PRINCETON, ILLINOIS
Construction Details on Opposite Page



The 18-story building houses the Law and Education Departments. It rests on a floating foundation 13′ thick, 60′ x 140′. Window frames are precast concrete and provide space for vertical ventilating panels made of colored metal. Smaller building in left foreground is the Pappas Law Library.



Designed in concrete . . .

FOR APPEARANCE, ECONOMY AND ERECTION SPEED

The natural concrete color of these new Boston University buildings blends well with the surrounding architecture. The variety of functional space requirements were more economically provided with the reinforced concrete design. And construction moved faster with concrete than would have been possible with other materials.

Here, as in many modern concrete designs, the fine quality concrete for all cast-in-place work was made with Lehigh Cement. Lehigh Portland Cement Company, Allentown, Pa.

Associated Architects:
Sert, Jackson & Gourley, Cambridge, Mass.
and
Edwin T. Steffian, Boston, Mass.

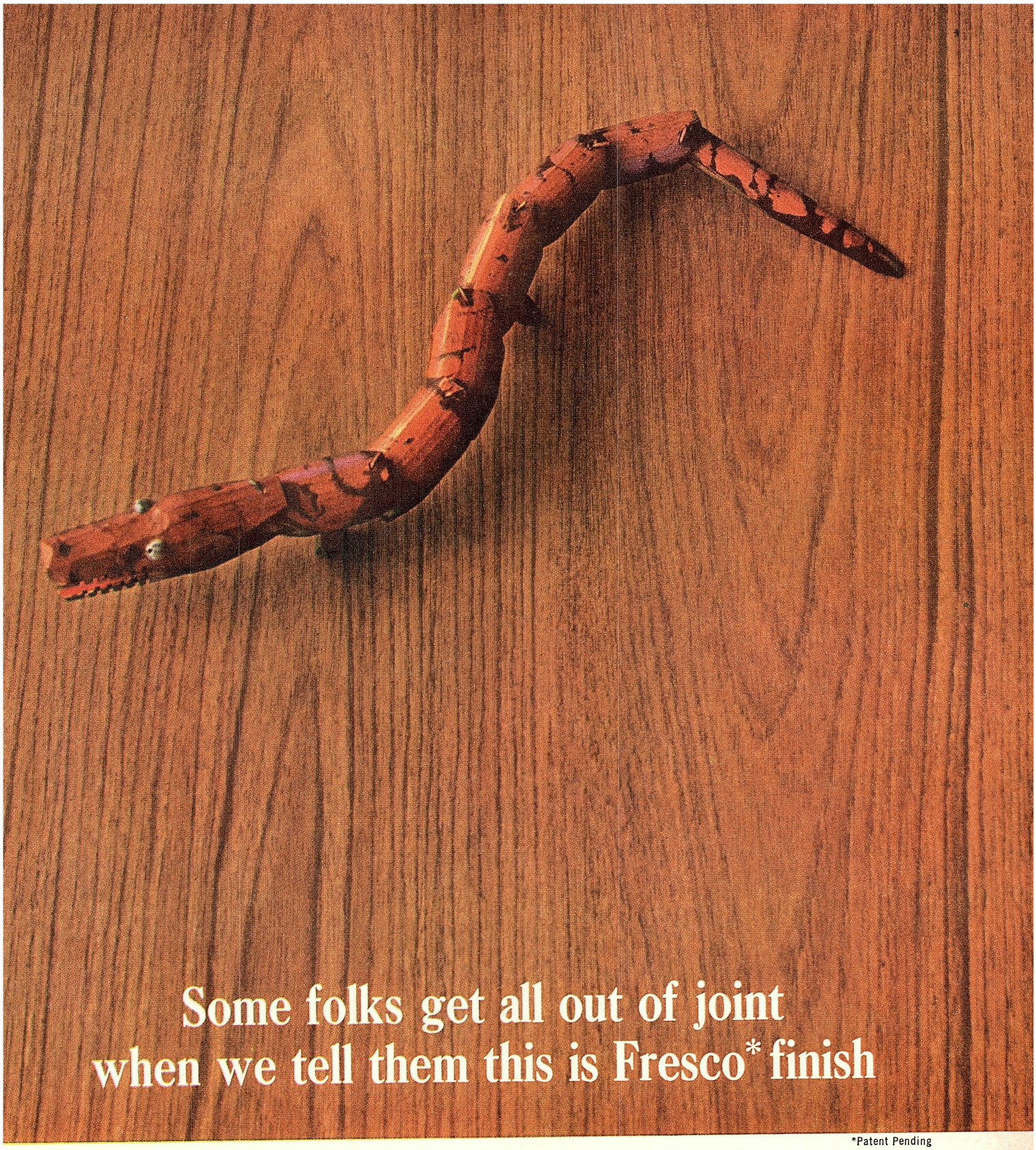
Associated Consulting Engineers:
Paul W. Weidlinger, Cambridge, Mass.
and
Cleverdon, Varney & Pike, Boston, Mass.

Foundation Consultants:
Arthur & Leo Casagrande, Cambridge, Mass.

Contractor:
Vappi & Company, Inc.
Cambridge, Mass.

Ready-Mix Concrete:
Boston Sand & Gravel Co.
Boston, Mass.

Precast Concrete Units:
Cambridge Cement Stone Co.
Cambridge, Mass.



Some folks get all out of joint when we tell them this is Fresco* finish

*Patent Pending

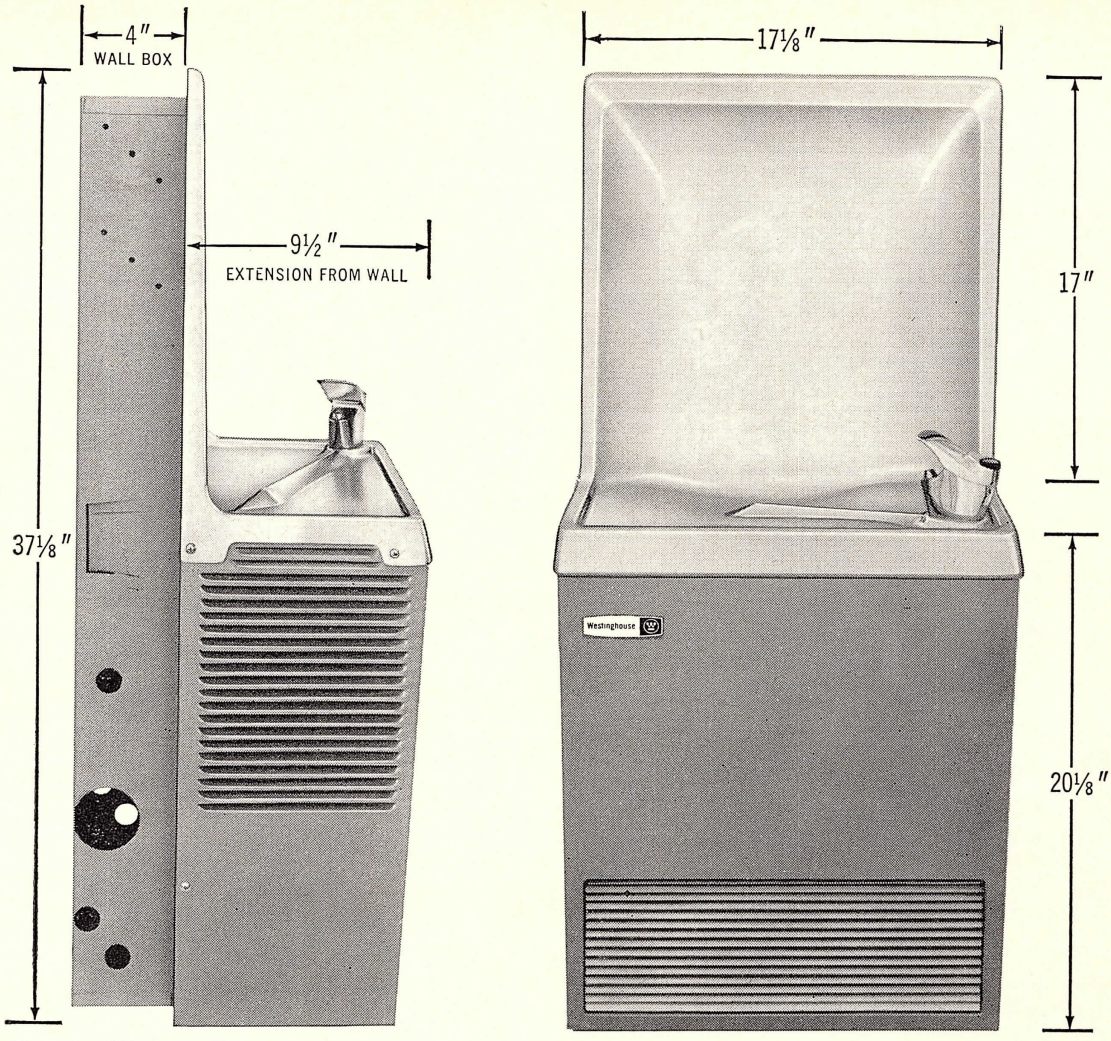
(Not fine wood)

Just for the record, Nevamar's new Fresco finish is an incredibly tough high pressure laminated plastic. It shrugs off bumps, thumps, stains and spills . . . as a laminated plastic should. ☐ But there the resemblance ends. ☐ Fresco finish looks for all the world like fine wood. Rich and warm . . . with an amazing depth of color. Even the grain looks real. Simply because *it is real.* Fresco finish is realistically grained to simulate the texture of real wood. A realism found in no other laminated plastic. Nevamar's exclusive low-sheen Fresco finish opens a whole new range of unique design opportunities. Comes in a wide selection of striking wood grains. ☐ **See them all . . . plus other exciting innovations in laminated plastic . . . when you visit the Nevamar exhibit this June at the AIA Show in Washington, D. C. We'll look forward to seeing you at adjoining booths #2510 and 2609.**

The NEVAMAR Company, Odenton, Maryland — A Division of National Plastic Products Company, Inc.

NEVAMAR®
LAMINATED PLASTIC ≡ TOPS EVERYTHING FOR LASTING BEAUTY

For more data, circle 102 on Inquiry Card



Just off our drawing board and ready for yours. New Westinghouse Semi-Recessed Water Cooler. Available as a drinking fountain or an electric water cooler. Either way, it blends with any new building décor.

Care to get better acquainted?



As a drinking fountain, this new cooler answers your new construction—low budget specifications. Add a refrigeration system and you've got an electric water cooler. What's more, its recessed-four-inch design allows for more complete usage of hallways and aisles. It has an all stainless steel fountain with a new finger-tip push-button bubbler—plus automatic stream height control and built-in strainer. Completely vandal-proof . . . bubbler valve locked to basin.

Models WSR8 (8/gph) and WSR12 (12/gph) are available with widest selection of cabinet finishes: pearl-gray baked-on enamel; or neutral beige decorative vinyl on zinc-coated steel; or all stainless steel cabinet.

Available for September delivery, but to accommodate earlier roughing-in schedule, you can specify June delivery of wall mounting box. For full details, refer to Sweet's Architectural File 29 d/We, Engineers' Product File. Check the Yellow Pages for your local distributor, or write Westinghouse, Columbus, Ohio.

You can be sure if it's Westinghouse

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flexcoat
FLOOR SYSTEMS

liberate floor styles from "stock catalog" tyranny!

FREE YOUR CREATIVITY from rigid flooring catalogs on your next interior... *exteriors, too!* Now you can really design floors with all the freedom of the artist's palette, because *Flex-Coat* and *Terrazzo-Flex* epoxy let you specify pattern, color, marbling and terrazzo effects, inlays, metallic glints... even surface texture... *indoors or out.* ■ Both Flex-Coat and Terrazzo-Flex materials are applied as liquids over subfloors, and are modified in-place by alternate colors for marbling or polyester confetti for terrazzo effects. They cure rapidly with bonding tenacity only epoxy delivers, and are self-leveling where a mirror finish is desired. *These materials never need wax.* Just damp-mop to restore the luster. (Think of the maintenance savings!) ■ *Flex-Coat* and *Terrazzo-Flex* materials were developed to answer the toughest industrial flooring problems. But designers discovered their beauty early, and now they grace the floors of offices, premium apartments, and every type of public building. Flex-Coat Corporation is extending availability as rapidly as *good* dealers can be trained for each territory.

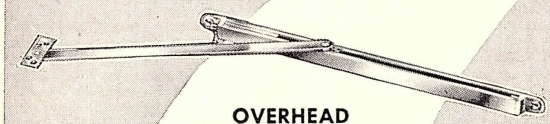
ATTENTION: Check with Flex-Coat for availability in your area. If we are not there yet, we will be soon. Therein lies opportunity for the best flooring specialist in your area, if he is financially competent and available for thorough factory training. Excellent territories are still open for the sort of men you rely on. Write, or ask them to write to: FLEX-COAT CORPORATION, 15720 South Garfield Avenue, Paramount, California 90723/Telephone: (213) 774-2940



"AZTEC" office furniture by McDowell & Craig, Inc./Terrazzo-Flex "Smoke Taupe" floor design by Alex Gwin

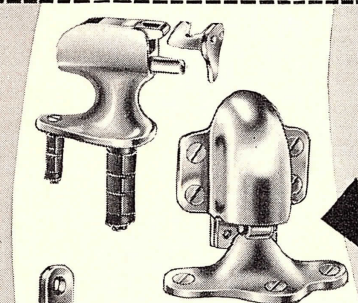
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with a complete line of GJ devices to select from . . .



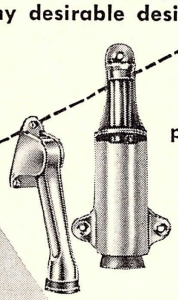
OVERHEAD DOOR HOLDERS and shock absorbers concealed and surface mounted. Many styles for exterior and interior doors.

You can specify *EXACTLY* according to each individual door control problem



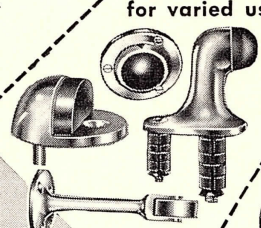
floor and wall type DOOR HOLDERS and BUMPERS in many desirable designs.

According to the specific door holding, door stopping, shock absorbing, and door-noise elimination problem . . . according to the use, size, material and style of the door and door opening . . . according to the type of the building . . . yes, even according to the hardware budget . . . you can specify a GJ device that will meet most any door control problem.

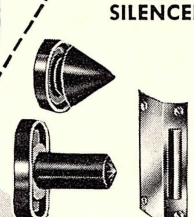


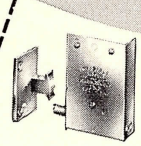
lever and plunger type DOOR HOLDERS

DOOR BUMPERS for varied uses.



DOOR MUTES and SILENCERS

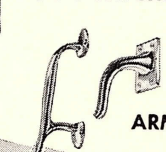




INVISIBLE LATCHES



CABINET and DOOR CATCHES



ARM PULLS

Your recommendation is backed by a 30 YEAR GJ REPUTATION for quality hardware, precisely made from the finest materials

refer to catalog no. 54 for full description and details.

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How to meet changing occupancy needs at minimum cost

It's really simple with the movable steel walls and cellular steel subfloor made by Republic customers.

Begin by drawing the desired floor plan. Then, workmen simply unfasten your walls, move them to the new position, and fasten them in place. If new wall panels or modifications are needed, they're available from the manufacturer.

For electrical outlets, all that need be done is to drill small holes in the floor. As shown in the cutaway view above, the smaller cells in the cellular subfloor act as raceways for electrical and communications wiring. The larger cells are ductwork for heating and air conditioning purposes.

Infinitely adaptable, movable steel walls are available in a wide choice of colors, textures, styles, and finishes. Their use allows you to give rooms new dimension quickly and economically without destruction during alteration.

By serving both as raceway and as ductwork, the cellular steel floor saves tremendous initial cost as well as future rewiring expense. Where less flexibility is required, the steel pan floor provides an ideal form for poured concrete slabs. It eliminates the need for slow costly building of conventional forms and adds the strength of steel to the structure.

There are many cost-cutting ideas in steel waiting to give you a better return on your building investment. For information, write Republic Steel Corporation, Dept. AR-1325, 1441 Republic Bldg., Cleveland, Ohio 44101.

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REPUBLIC STEEL

CLEVELAND, OHIO 44101

STRONG • MODERN • DEPENDABLE

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If you want to keep appearances up and costs down in carpeting... look for this.

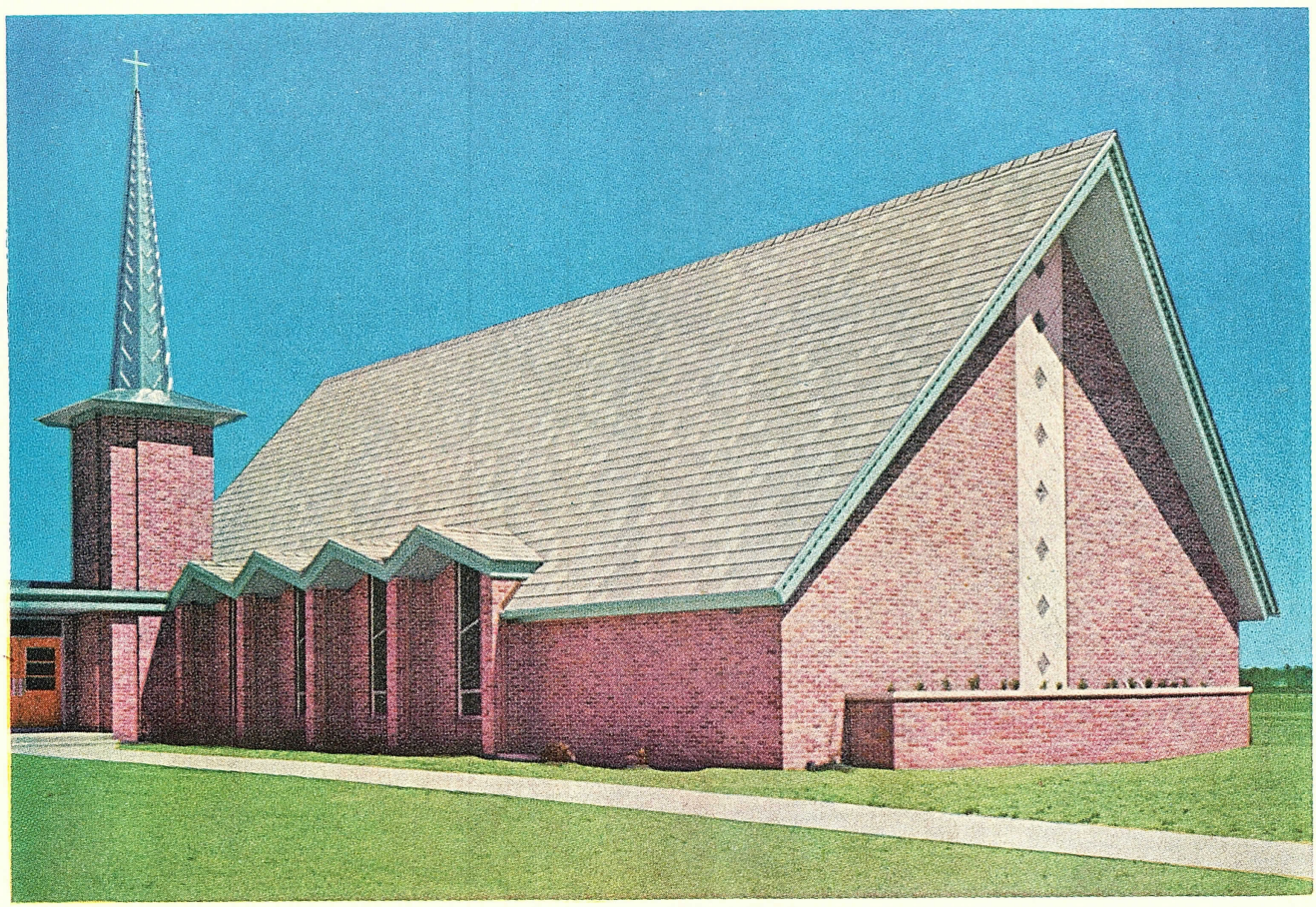
It takes very little to keep All Wool carpeting fresh and new-looking. Little time, little effort, little money. How come? In between vacuumings wool does the work for you. It's naturally resilient. Bounces right back when it's stepped on. Keeps bouncing back for years and years. And, it's this lively strength that means less pilling, too.

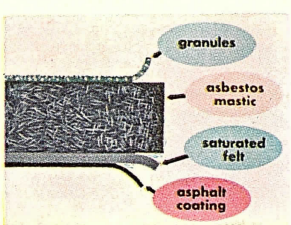
But appearance retention is just part of the story. Wool costs less to clean and maintain. Resists soil, resists stains, spot cleans beautifully. Needs less frequent vacuuming, shampooing, restoring. And wool has a low rate of replacement, too. Wool is permanently mothproofed *and* naturally resists flame. (Dropped cigarettes leave just a pinpoint burn, not a deep scar in your carpet.) Wool is just about the perfect floor covering. Proven. By years and years of superb performance in hotels, motels, schools, hospitals, restaurants. Wool gives you everything you want, for sure. Any color, design or texture. Appearance retention. Low cleaning and maintenance cost. Low rate of replacement. Get All Wool. That's how to get the most for your money in carpet.

The answer is wool...it costs less in the long run

Wool Carpets of America, 360 Lexington Avenue, New York, N. Y. 10017

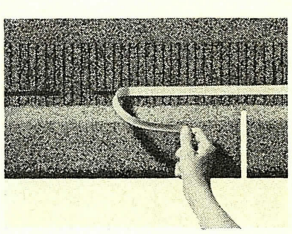
Is a Fire-Chex® roof as good as it looks?





You be the judge. First, note the unique Fire-Chex composition—a result of unmatched roofing experience that has produced superior felts, saturants and coatings—and the famous Fire-Chex Mastic that contains more asbestos than any asbestos-cement shingle of equal weight.

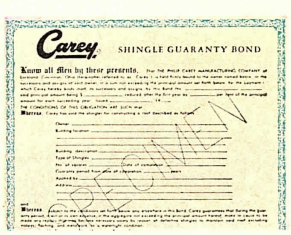
To protect against winds, Fire-Chex Shingles offer exclusive Sta-Seal® Tabs that bond one shingle course to the next on light pressure contact. And on Fire-Chex '325 Shingles the efficiency of this seal has been proved in test winds of hurricane force.





Also, Fire-Chex Shingles were the first to earn the Underwriters' Laboratories' Class "A" Fire-Safety Rating. The photo at the left shows an unharmed wood deck after a Class "A" fire brand test on a Fire-Chex roof at 2000°F. You just can't buy better protection against fire.

Exceptional durability—proved in 15 years of field use and millions of squares applied—enables Philip Carey to offer a 25-Year Bond on Fire-Chex Shingles. This is why Fire-Chex is a logical specification for any structure deserving quality components throughout.


Carey SHINGLE GUARANTY BOND

Know all Men by these presents,

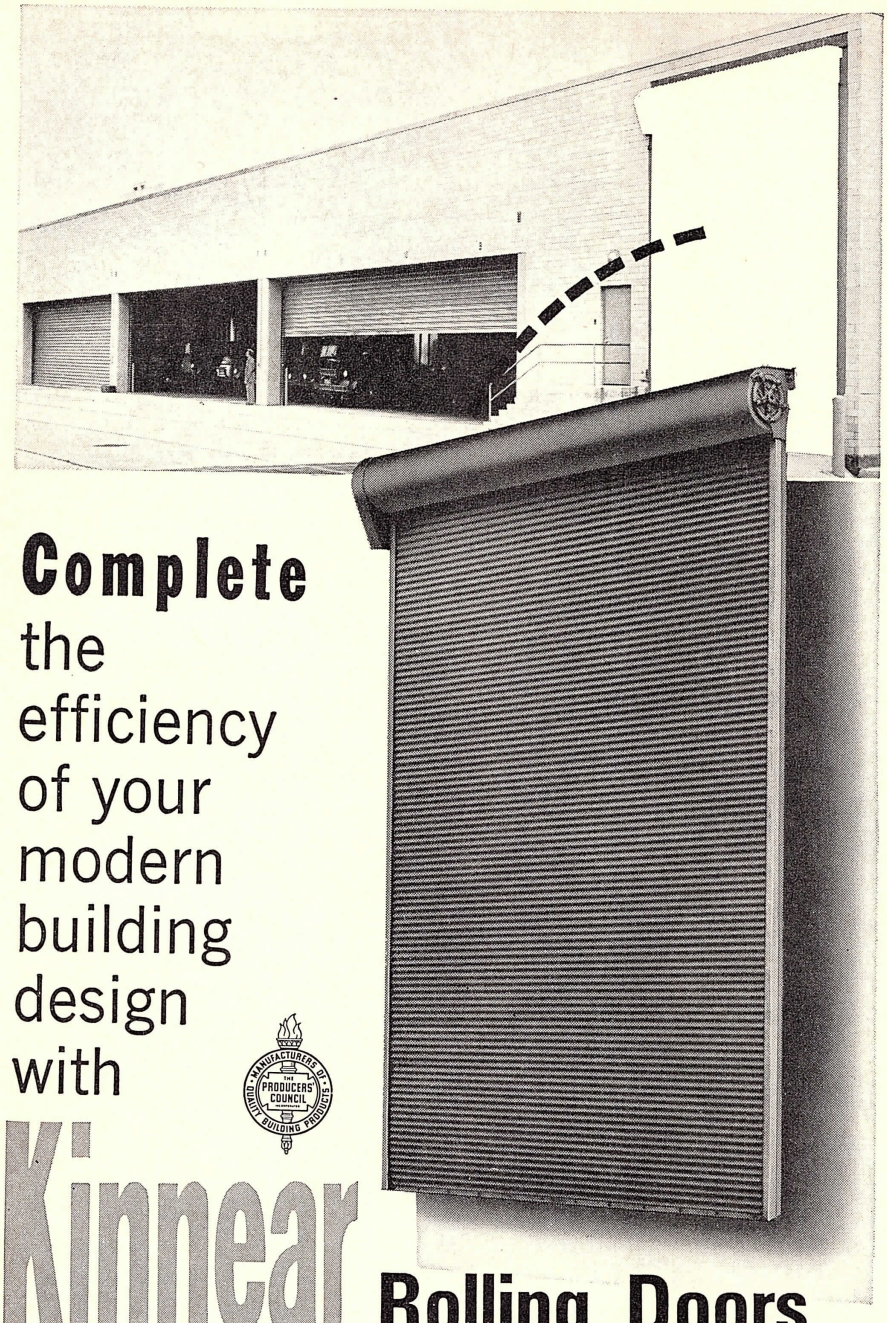


A Fire-Chex roof *is* as good as it looks. And its good looks are just as much engineered as its quality. The extra thickness and the plain or 2-tone color blending of Fire-Chex Shingles will produce a roof of distinctive beauty on any structure. And, incidentally, Fire-Chex offers the widest choice of colors available in Class "A" shingles. For more information, write Dept. AR-565, The Philip Carey Mfg. Company, Cincinnati, Ohio 45215.

PHILIP Carey®

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For more data, circle 108 on Inquiry Card



Complete the efficiency of your modern building design with

Kinnear Rolling Doors

These rugged doors have interlocking slats (aluminum or galvanized steel) for maximum protection against fire, theft, vandalism, wind and weather. They open straight up and coil compactly out of the way to save space.

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HASTINGS WINS MICHIGAN MEDAL

Robert F. Hastings, F.A.I.A., was awarded the Michigan Society of Architects Gold Medal for 1965 at the Society's 51st convention, held in Detroit. Mr. Hastings is treasurer of the American Institute of Architects and a candidate for first vice president and president-elect in the elections to be held at the A.I.A. convention in June. He is president of the Detroit architectural firm of Smith, Hinchman & Grylls Associates, Inc.

Mr. Hastings, an editorial consultant to Architectural Record, has many affiliations and activities. He attended the universities of Wisconsin and Illinois. In 1937 he graduated with honors from the University of Illinois as a Bachelor of Science in architectural engineering.

PEDERSEN WINS ROME FELLOWSHIP

William E. Pedersen, Jr., architect, of Cambridge, Mass., has been chosen to receive one of 14 Rome Prize Fellowships at the American Academy there. The fellowship, which is for a one-year period beginning October 1, includes a cash grant of $3,650 in addition to the use of residential, studio and library facilities at the Academy.

Mr. Pedersen is a designer with Eduardo Catalano, architect, Cambridge. He received a Bachelor of Architecture degree from the University of Minnesota in 1961 and a Master of Architecture degree from the Massachusetts Institute of Technology in 1964.



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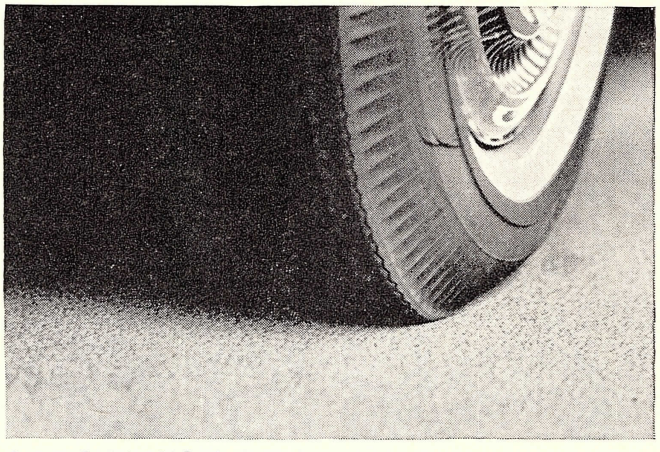


ARMIES MARCH ON IT
at the World's Fair, General Electric Pavilion

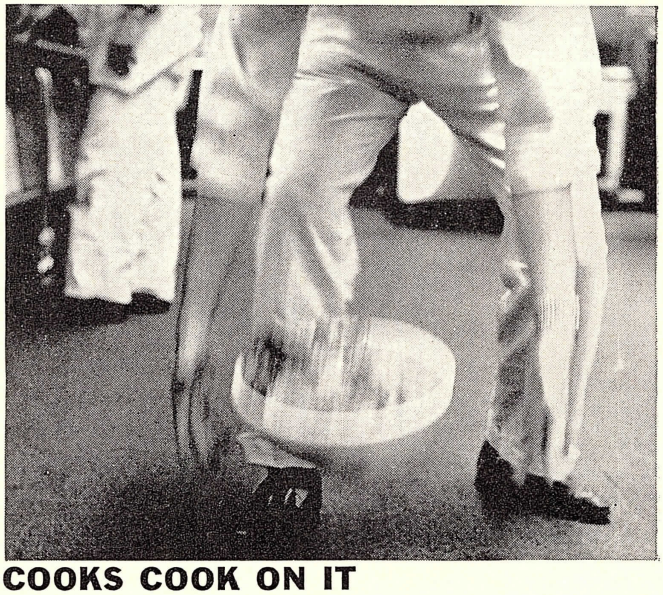
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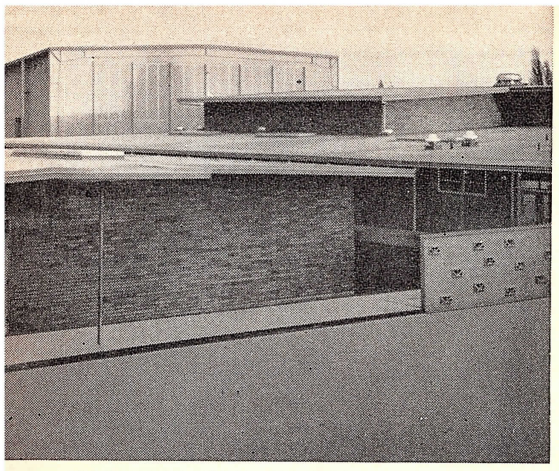
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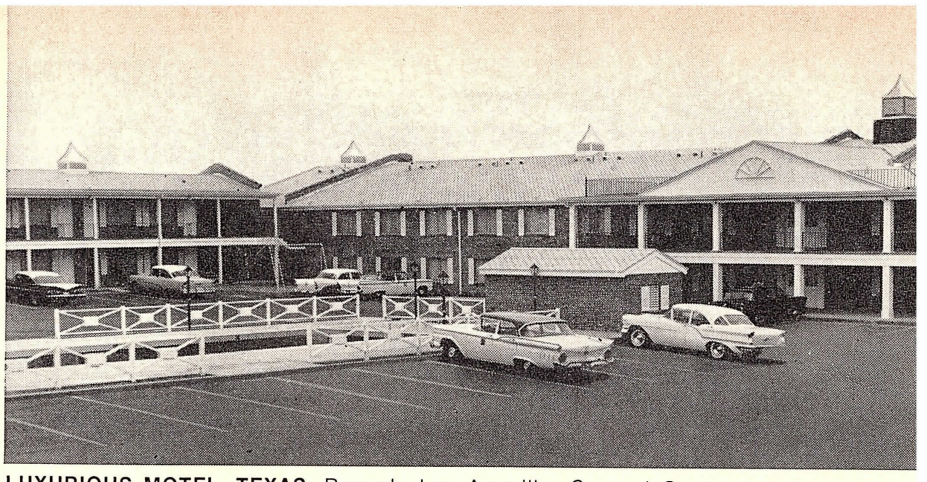
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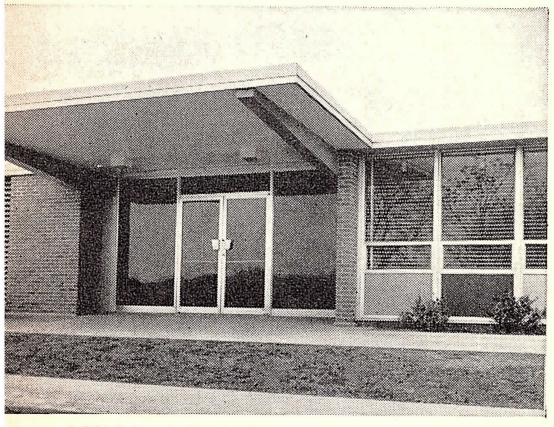
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EFFICIENT HIGH SCHOOL, WASHINGTON — Cascade High School, Everett. *Architect:* Harry E. Botesch. *General Contractor:* Newland Construction Co. *Ready Mixed Concrete:* Associated Sand & Gravel Co. *Masonry Contractor:* G. E. Blackstone. *Masonry Cement Supplier:* H. O. Seiffert Co.



LUXURIOUS MOTEL, TEXAS—Ramada Inn, Amarillo. *General Contractor:* Dewey A. Hicks. *Masonry Contractor:* H. C. Bennett. *Masonry Cement:* Crowe-Gulde Cement Co. *Ready Mixed Concrete:* Amarillo Concrete Co.



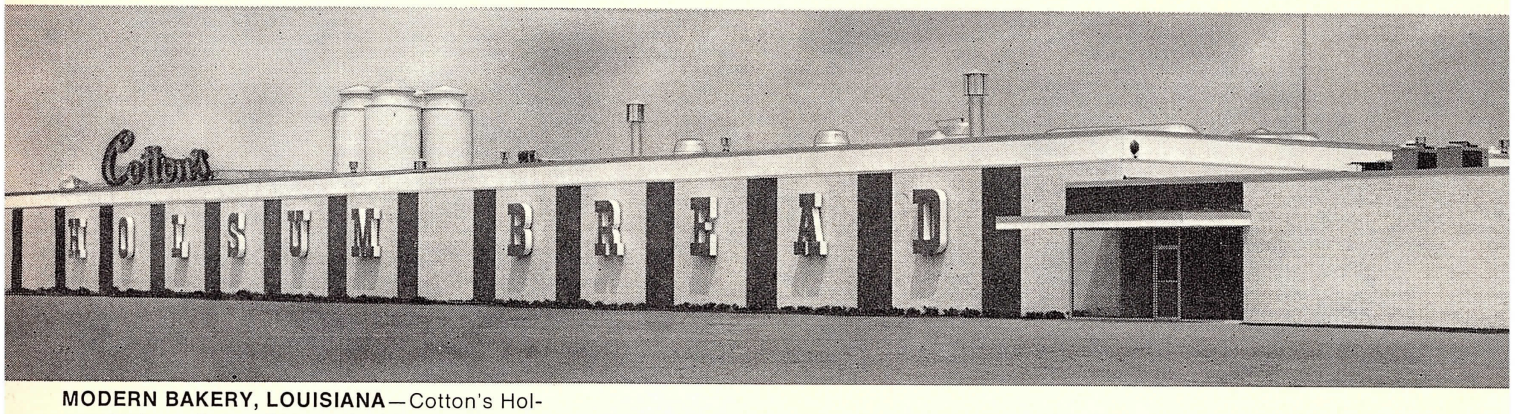
SCHOOL FOR THE HANDICAPPED, INDIANA — Hendricks Special Education Building, Logansport. *Architect:* Medlan & Bowman. *Contractor:* James I. Barnes Construction Co. *Ready Mixed Concrete:* Wolf Supply Co. *Masonry Cement:* Logansport Supply Co. *Rapidex Precast Roof:* Spickelmier Co.

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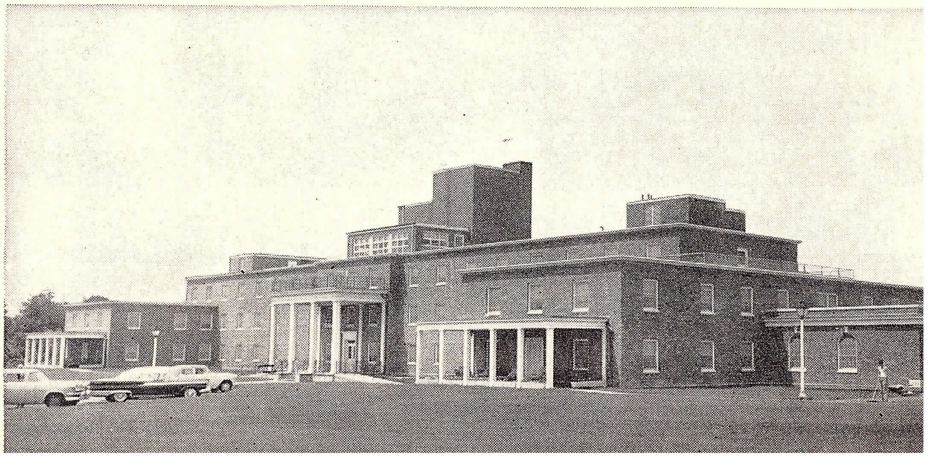
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MODERN BAKERY, LOUISIANA — Cotton's Holsum Bakery, Baton Rouge. *Architect:* Wilson & Coleman. *General Contractor:* Charles Carter & Co., Inc. *Masonry Contractor:* L. J. Langlois. *Masonry Cement:* Baton Rouge Supply Co., Inc. *Ready Mixed Concrete:* Altex Ready Mixed Concrete Corp.

FIRE-SAFE NURSING HOME, NEW YORK — Bethel Methodist Home for the Aged, Ossining. *Architect:* Ferrenz & Taylor. *General Contractor:* J. R. Stevenson Corp. *Concrete Contractor:* Forbes Fireproofing Corp. *Masonry Contractor:* Palmieri Contracting Corporation. *Ready Mixed Concrete:* Cooney Brothers, Inc.





Painting by Gyorgy Kepes. 24" x 30", 1963. Private Collection

THE VISUAL ARTS AND THE SCIENCES: A PROPOSAL FOR COLLABORATION

By Gyorgy Kepes, professor of visual design, Massachusetts Institute of Technology

These lines are hesitantly written by a painter, whose tools are images, not words, who feels at home in the visible world rather than in the complexities of concepts, and whose commitment is to qualities of the seen world, not to disciplined interpretations of measured phenomena. The thoughts presented here have grown out of an internal dialogue between dreams of the full life and the recognition that our circumstances seldom permit them to come true.

This article originally appeared in the Winter 1965 issue of Daedalus, *the Journal of the American Academy of Arts and Sciences*

I sometimes dream about being just a painter, painting and forgetting everything else—living in the richness of the moment—like the feeling I remember of swimming without any sense of time or goal, feeling the cooling touch of water, the warmth of the sun, the effortlessness of movement. But such experiences of timeless blending into the enveloping natural world are rare. A painter, too, may find a sense of abandon when the interplay between brush strokes and not-yet-visible but intensely felt hidden images develops freely into life. But such glimpses of felt unity with the "primal sanities of nature," disregarding measured time and parceled space and finding an exalted confidence in mere being, also come only rarely and do not last. Each moment of our contemporary existence reminds us that we are growing out from yesterday and moving toward tomorrow, and that our individual survival and self-realization can be guaranteed only by the cooperative acts of other men. We live in history and we live in society. Yet even though we may recognize that our lives are secured by the combined efforts of the social body, our explosive, unresolved mid-twentieth-century life compels us, as individuals, to return again and again to the basic questions: What am I? Where have I been? Where am I going?

One of the most evident signs of the contemporary self-consciousness is the obsessive questioning of what roles we are to play; and nowhere is this more true than in the urgent concern over questions of the justification, the scope, and the significance of artistic forms. In no other area of contemporary civilization are claims and counterclaims made with such vehemence, such offensive and defensive rigidity. Quacks and peddlers of fake solutions, with their artistic nostrums, are hard to distinguish from persons with honest beliefs and deep commitments. The part controls the whole. So many of our artists single out fragmentary aspects of a complete image of human experience. At one moment they are busily improvising an image of speed, casting away repose and introspection. At other times they are manufacturing new fertility symbols or paying homage to the increasing production rate of our industrial society, rejecting the broad panorama of nature. Lately, infatuated with the isolated kinesthetic act, they accept the autobiographical note of an accidental moment at the expense of the rest of life.

Some fifty years ago the Italian Futurist Filippo Marinetti orated about "the racing space, the acrobatic somersault, the slap in the face and the blow of the fist—'war,' the bloody and necessary test of the people's force." Naum Gabo and Antoine Pevsner answered him thus:

> The pompous slogan of "Speed" was played from the hands of the Futurists as a great trump. But ask any Futurist how does he imagine "speed," and there will emerge a whole arsenal of frenzied automobiles, rattling railway depots, snarled wires, the clank and the noise and the clang of carouselling streets . . . does one really need to convince them that all that is not necessary for speed and for its rhythms?
>
> Look at a ray of sun . . . the stillest of the still forces; it speeds more than 300,000 kilometres in a second . . . behold our starry firmament . . . who hears it . . . and yet what are our depots to those depots of the Universe: What are our earthly trains to those hurrying trains of the galaxies?

Mere revelry in the novelty of immediate visual dynamics without an understanding of their roots and of their direction of growth only prevents us from finding the way out of our blind alleys. Some attempts to come to terms with our explosive world have bogged down in just such easy-to-come-by excitement; the central interest of many artists has been riveted to the mimetic surface aspect of our surroundings.

This is not to deny that other artists have searched with admirable discipline for visual idioms capable of rendering the fundamental dynamic character of twentieth-century experience. The first, in significance as well as chronologically, were artists working in the early part of this century. Artists of the Cubist era realized that the visual qualities o our surroundings cannot be project ed in an artistic image seen from single fixed view. The Cubist's paint ed image of physical space was nc the painted replica of his optical im age. It was an evocation and orderin of the changing views collected by hi moving, exploring eyes.

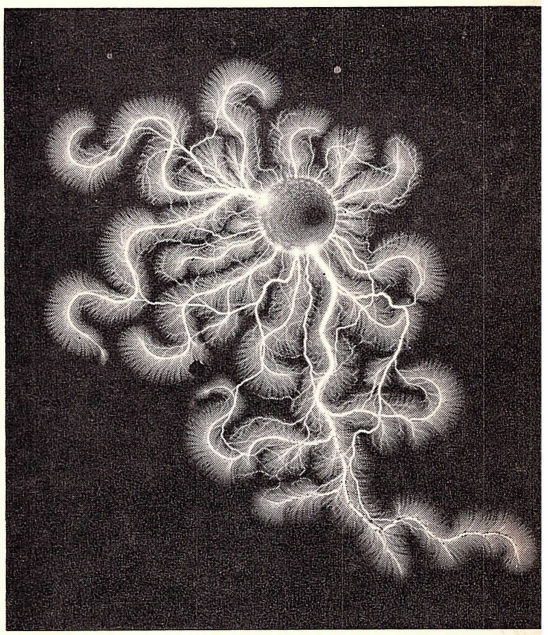
Although these painters limite themselves to a single and one-side goal, to an exploration of the struc ture of images, their efforts led to th rediscovery of three fundamental as pects of artistic vision: *complemen tary unity*—the unity of interactio of observer and observed, of orde and vitality, of constancy an change; *rhythm*—basic to all livin process, and so, too, to the creatio or reliving of an artistic configura tion; *sequence* in the life span of cre ated experience. Images are create and perceived as structured se quences of patterns; melodic line an contrapuntal organization are inher ent not only in musical patternin but in all created forms. It is to thes three conceptions that I shall relat the thoughts that follow.

Artists after the Cubists, however went other ways. The Italian Futur ists were typical. They closed thei eyes to their inner world and focuse on the dynamic outside environment Living in a country that was laggin behind industrially and was dream ing of past glories—a country of mu seums with little relevance for twen tieth-century man seeking his iden tity—they held that the two world of the old and the new could not co exist and, rejecting their heritage they blasted away at all the inhibit ing memories of the past. Thus the used techniques of recording the mo tion of objects that closely resem bled the photographic motion studie of the great nineteenth-century phys iologist E. J. Marey, and then hel them to be art-saving, revolutionar innovations. They claimed complet authority for this one-sided visio and denied the existence of othe forms of visual expression.

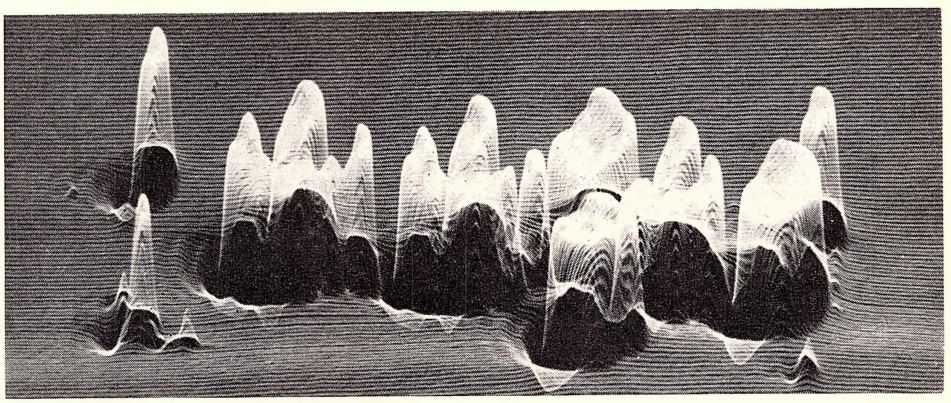
In the same way that the Futurist were blind to the past, more recen artists have been blind to the future



ight projection of nature pattern. Jékabs Zvilna



Lichtenberg figure, pattern of electric discharge. Professor A. R. von Hippel, M.I.T.



Oscilloscope pattern. Joseph Benenate. Federal Electronic Laboratories, Inc., Cambridge, Massachusetts

'In the same way that the Futurists were blind to the past, more recent artists have been blind to the uture. They have renounced the public forum and recoiled to the innermost privacy of unsharable ingular moments of existence. They shrink the world to a rebellious gesture, to violent graphs of the ornered man . . . We cannot renounce the dimensions of the twentieth century—of which the new erspectives opened by scientific triumphs are a part—just because in certain respects adjustment o them is not achieved without distress; we may suffer from exposure to the new scale, but it is necessary or us to meet it. Only complete acceptance of the world that is developing can make our lives genuinely cceptable.''

They have renounced the public forum and recoiled to the innermost privacy of unsharable singular moments of existence. They shrink the world to a rebellious gesture, to violent graphs of the cornered man. "The big moment came," as an articulate spokesman of this group has put it, "when it was decided to paint . . . just to paint. The gesture on the canvas was a gesture of liberation from value—political, aesthetic, moral." But in fact, these artists recoil from the necessary vital interaction with the outside environment and thus have broken again the essential unity of the seer and the seen.

Later, the interest of a new group of motion-addicted artists swung back again to the outside world. Instead of looking for new qualities of twentieth-century life, they produce substitute moving objects, either cerebral, impeccable, watchwork-like toy machines or self-destructive Frankenstein monsters made from corroded fragments of industrial waste. Some painters also experiment with motion, and their sophisticated knowledge of visual illusions produces amusing, well-groomed eye teasers by mobilizing every optical trick to animate surfaces into virtual motion.

A most recent group of artists has returned from abstract images to concrete objects in their environment. They have become fascinated by vulgar features of everyday life, and they have chosen them as emblems. Seductive selling devices of the competitive society—advertising pictures, containers, packages, and the mass-produced heroes of the comic strips—are their preferred images. These artists have a just resentment against the gigantic, semantic conspiracy of newspapers, billboards, and television to catch public attention through deliberate doubletalk. They recognize how language—verbal and visual—is exploited to force the responses of a passive public. But, parallel with this awareness, they have developed an attachment to objects that never left their visual field. Their unresolved mixture of private attachment and public critical social commentary takes no account of the revolutionary artistic achievements of the earlier part of the century.

Most of the mushrooming art movements seem to have forgotten the essential role of artistic creation. By and large, the art world has become the scene of a popularity contest manipulated by appraisers and impresarios who are blind to the fundamental role of the artistic image. To find our way in this bewildering scene, we must return to fundamentals and ask basic questions. We all wish that we could live without these clumsy confrontations, but we cannot evade the specific problems that we encounter in art nor the fundamental questions of our condition. The eager prophets of the *dernier cri* are blind to the basic principle that what makes today is not only today. "From the oldest comes the newest," commented Béla Bartók, an authentic spirit of our time.

Vision is a fundamental factor in human insight. It is our most important resource for shaping our physical, spatial environment and grasping the new aspect of nature revealed by modern science. It is at its height in the experience of artists, who elevate our perception. Artists are living seismographs, as it were, with a special sensitivity to the human condition. Their immediate and direct response to the sensuous qualities of the world helps us to establish an entente with the living present.

Yet artists today lack orientation in the contemporary world. They come together in small groups in great cities, where, in the safety of little circles that shut out the rest of the world, the initiates share one another's images. They generate illusory spontaneity, but miss the possible vital connections with contemporary intellectual and technological reality. It is unfashionable today, if not taboo, for artists to think and act on the broad terms of cultural and social ideals. No doubt moralizing in art can lead to creative suicide, just as market-policed and state-policed art can lead to the murder of artistic honesty. But the other extreme—lack of intellectual curiosity and rejection of commitment—leads to emaciation of artistic values.

It seems to me that the overwhelming task of creating modern science on its present, large scale has used up some of our most important intellectual and emotional equipment. When a vital part in a complex machine is worn out or out of adjustment, it is wiser to stop the mechanism than to grind on to destruction. Engineers, therefore, devise arrangements that ensure orderly shutdown when a part gives way. It may be that our cultural life has had such a "safety failure," as the engineers call it. Our artists may have served us by preventing a disaster.

Nevertheless, an emotional return to the archaic, ancestral cave would obviously be a failure to function in contemporary terms. Let us not mistake this temporary standstill for a genuine answer to our long-range needs. We cannot renounce the dimensions of the twentieth century—of which the new perspectives opened by scientific triumphs are a part—just because in certain respects adjustment to them is not achieved without distress; we may suffer from exposure to the new scale, but it is necessary for us to meet it. Only complete acceptance of the world that is developing can make our lives genuinely acceptable. Such acceptance involves two tasks: to advance in every field to the furthest frontiers of knowledge possible today; and to combine and communicate all such knowledge so that we gain the sense of structure, the power to see our world as an interconnected whole.

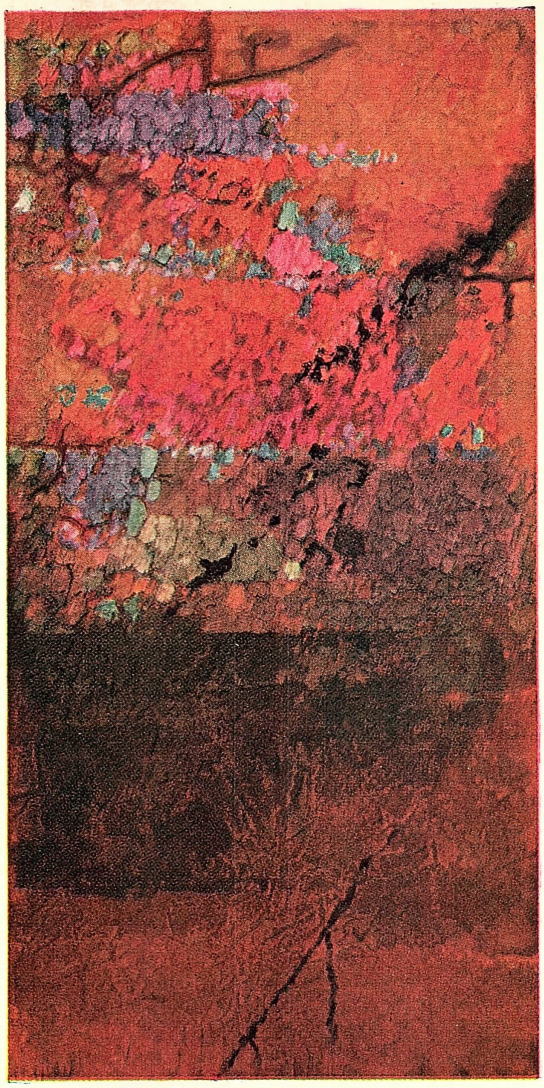
Today there is a growing general awareness of art as an important human faculty to provide this sense of structure. Museums, art centers, art magazines, and proliferating galleries are doing an important job in helping the artist to communicate with the public. But with all this there are significant areas still in the shadows, areas that will remain in the shadows unless we can find means of stimulating discourse of two kinds. One is discourse between artists who work in various media and

have common interest in exploring the many potentials for them that lie in technical developments. The other is the interaction between artists and the major scientific and technical contributors of our time. Particularly in the second of these areas of interaction, the need is evident enough, if one may judge by the frequent expressions of hope for some kind of fruitful plan. Fully aware of the considerable difficulties, I wish to put forward a modest proposal.

I propose the formation of a closely knit work community of eight to ten promising young artists and designers, each committed to some specific goals. The group, located in an academic institution with a strong scientific tradition, would include painters, sculptors, film-makers, photographers, stage designers, illumination engineers, and graphic designers. They would be chosen for their demonstrated interest and alertness to certain common tasks. It is assumed that close and continuous work contact with one another and with the academic community of architects, city planners, scientists, and engineers would lead to a climate more conducive to the development of new ideas than could be achieved by individuals working alone, exposed only to random stimulations and subjected to the pressures of professional competition and the caprices of the art market.

Beyond any doubt, unique, authentic, and essential contributions come from the hidden layers of the personality. These deeper sources of creative imagination cannot be manipulated externally, nor can they be released simply by financial aid or even optimum physical working conditions. On the other hand, the past has given us ample evidence that major creative achievement comes from the confluence of many types of creative personalities.

George Gaylord Simpson, the paleontologist, has commented that as organic evolution was brought about by interbreeding, so must our further cultural evolution today come about through broad-scale "interthinking." An experimental effort to encourage



Painting by Gyorgy Kepes.
36" x 72," 1963. Private Collection

Painting by Gyorgy Kepes. 60" x 60," 1964. Private Collection



such interthinking between different disciplines in the visual arts and scientific and technical fields is more than overdue. As the twentieth century has grown older, such intercommunication has become seemingly more improbable. Lacking orientation in the total contemporary world, which holds as much promise as it does menace, many artists have inevitably withdrawn into themselves. Their only honest response to this world has been the expression of complete isolation. In their frantic retreat, many of them have adopted a scorched-earth policy and have burned their most valuable cultural belongings. Cornered and confused, some of them disguise brutality as vitality and intellectual cowardice as existential self-justification.

In a less fragmented life, before the common life of society was frozen into separate compartments each with its specialized interests and jargon, priests and laymen, scholars and artisans, poets and artists could communicate to a larger degree in the same language and could pool their feelings and knowledge in a common cultural stream. A hope for such unity can hardly be entertained when we are faced with the complexity and scale of the present cultural situation. We cannot improvise a new central theme for our lives, nor can we create a unity with a well-defined scale of values for all aspects of our civilization. But we can mobilize latent aspects of our cultural life that offer a strong centripetal pull.

The proposed small work community, by recognizing common problems of adjoining or related fields, could accomplish the dovetailing of knowledge and feeling, or of knowledge and knowledge. Engineering knowledge could serve to reinforce the insights of artistic sensibilities. The approach and craftsmanship of one artist or designer could serve to complement that of another and lead into new directions.

Among the wide range of artistic goals today, there are many that could and should be of equal concern to painters, designers, film-makers, sculptors, and others. Themes that suggest themselves for the initiation of such a program include (1) the creative use of light; (2) the new aspects of environmental art—the gearing of sculptural and pictorial tasks to the dynamic scale of the urban environment and to the new wealth of technical tools and implements; and (3) the role of visual signs in artistic communication—an investigation that could branch out into a creative exploration of subjective icons as well as of the common visual symbols in the cityscape, and a scientific exploration of communication and the use of graphic signs for didactic purposes.

Of these and many other possible themes, I have selected the first two for concrete discussion. Each of these two cases will indicate that the task defines itself differently for different groups within the work community. The supporting personnel for each can be drawn from various segments of the academic host institution, such as electrical engineering, metallurgy, psychology, communications engineering, city planning, or architecture, as the given undertaking requires. In such a cooperative effort the value will come not only from an exchange of complementary ideas, but also from the friction of the conflicts that inevitably arise when such a group of individuals, each with his own angle of approach, works toward a common goal.

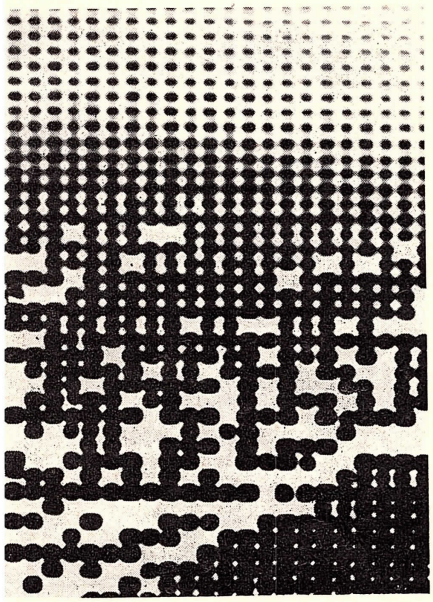
Following are more explicit statements of the scope and approach of the two selected themes suggested for cooperative treatment.

1. The Creative Use of Light

Both natural and artificial light serve as essential creative tools in a variety of areas. Most of the recent representation and communication devices that speak to the eye are based on the modulation of light—for example, photography, motion pictures, television, and, to some degree, stage design. But beyond this, light has, or might have, a dominant role in contemporary architecture and the new cityscape, as I will indicate later on. Up until now, the imaginative use of light has been a neglected area i design. With other means, architect planners, engineers, and artists hav gone far in establishing a basis fo a physical environment that is, at it best, authentic in its solution o twentieth-century needs and promis ing in its enrichment of our lif While there have been considerabl technical advances in lighting, an designers with light have made som notable contributions, there ar many directions that they have nc begun to explore, nor even begun t dream of.

In large part both the forms of con temporary architecture and the na ture of present-day urban life hav been modified by technical advance in illumination. The transmission o natural and artificial light throug large sheets of glass has helped cre ate a fresh sense of space as well a an augmented demand for light with in structures. All hours of the da may now be exploited, for the shar differentiation in nature betwee night and day has fused in our citie into a single time scheme of day and-night. Without artificial lightin in our houses and streets and vehi cles, the circulation of people an goods would be reduced to a trickl When evening comes and the light are turned on, the city is trans formed, however chaotic, blighted, o ugly its daytime face. Points, line plane figures, and volumes of light whether steady or intermittent, mov ing or still, white or colored, whethe from windows, signs, spectacular headlights, traffic lights, or stree lights—all compose a fluid, luminou wonder. It is—again at its best— one of the grand sights of our age Although this impressive display i produced almost by accident, a by product of utility, its magnificenc reminds us of the concentrated an ordered beauty of the great window of thirteenth-century cathedrals This accidental splendor contains th promise of a new art, the orchestra tion of light, on both limited and vas scales.

The use of light to clarify and in form architectural spaces and com plex cityscapes is not yet a discipline



Rhythm study with light, 1947. Gyorgy Kepes



Kinetic light lines, 1953. Gyorgy Kepes

"I propose the formation of a closely knit work community of eight to ten promising young artists and designers, each committed to some specific goals. The group, located in an academic institution with a strong scientific tradition, would include painters, sculptors, film-makers, photographers, stage-designers, illumination engineers, and graphic designers. They would be chosen for their demonstrated interest and alertness to certain common tasks. It is assumed that close and continuous work contact with one another and with the academic community of architects, city planners, scientists, and engineers would lead to a climate more conducive to the development of new ideas than could be achieved by individuals working alone, exposed only to random stimulations and subjected to the pressures of professional competition and the caprices of the art market . . . our further cultural evolution today (must) come about through broad-scale 'interthinking.' An experimental effort to encourage such interthinking between different disciplines in the visual arts and scientific and technical fields is more than overdue . . . it is possible that a striking advance can be brought about by an effort directed at exploring light itself as a field for the creative imagination, not merely as an adjunct of architecture and planning. . . . the most potent artistic imaginations have always utilized the most advanced technical potentials—artificial illumination and new structural principles are among the most fertile potential creative devices of this century."

We do not yet command the principles, principles which must be based on a thorough understanding of the tools of lighting as well as on a full awareness of the requirements for raising the art of using light to a high level. Certain preliminary steps must be taken. We know how to make illumination both adequate and comfortable. This has been the goal of illumination engineers who have learned all that physiology and physics can teach them concerning both natural and artificial lighting. But architects and planners realize that there are immense opportunities in lighting, and they demand more than just comfort and amplitude. Stainless steel, reinforced concrete, extensive glass surfaces, and the new structural systems naturally collaborate with the tools of lighting. Together they suggest a whole new range of light qualities for architectural surfaces and spaces, analogous to the way the glass sheath of structures such as the U.N. building condense and abstract from their surroundings by reflecting the daytime sky- and cityscape. No one as yet quite realizes, however, how to take full advantage of these opportunities. Such knowledge will slowly grow. On the other hand, it is possible that a striking advance can be brought about by an effort directed at exploring light itself as a field for the creative imagination, not merely as an adjunct of architecture and planning.

By a coordinated exploration of the use of light in research areas that are at present unassociated, we shall move toward those fundamental principles that can fully mobilize both artistic sensibility and technical knowledge. We are able to perceive a higher unity achieved in certain traditional systems of working with light, as, for example, the techniques employed in the twelfth- and thirteenth-century stained glass, at York, Chartres, Le Mans, Sens, and the Sainte Chapelle, or in the vibrating play of light in the glass mosaics of Ravenna. We can see the same thing in the sculptural modulation of simple buildings, both ancient and modern, in the Mediterranean basin, where there is an unsurpassed use of sunlight to define form and enhance surface; or in the exploitation of mist and gray skies in the looming features of Central European castles, or in the Praxitelean use of multifaceted cutting of Parian marble to make the surface of a statue "breathe." We can see it in the use of light in modern stagecraft and photography, in advertising displays, in the electronic instrumentation of light, in projected light plays and electronically controlled lighting.

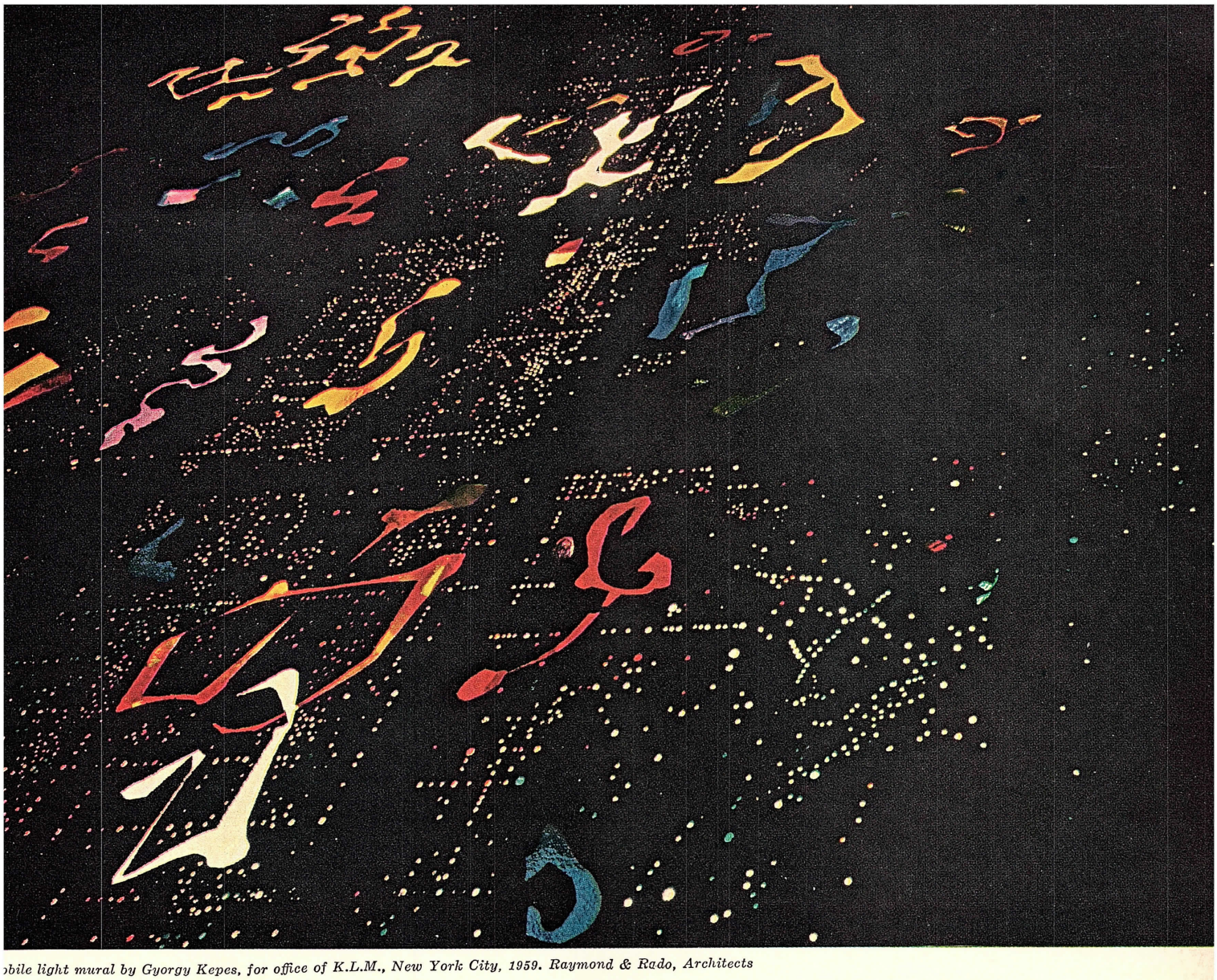
All the forms of light have in common certain principles, and these principles must be developed and exploited for ever wider purposes. Albert Michelson, the first American to receive the Nobel prize in physics, recognized the new scientific and technical dimensions of the twentieth century as legitimate tools and goals for artistic expression. He wrote:

> Indeed, so strongly do these color phenomena appeal to me that I venture to predict that in the not very distant future there may be a color art analogous to the art of sound—a *color music*, in which the performer, seated before a literally chromatic scale, can play the colors of the spectrum in any succession or combination, flashing on a screen all possible gradations of color, simultaneously or in any desired succession, producing at will the most delicate and subtle modulations of light and color, or the most gorgeous and startling contrasts and color chords! It seems to me that we have here at least as great a possibility of rendering all the fancies, moods, and emotions of the human mind as in the older art.

Artists a generation before us also recognized the need for a new frame of reference for their creative vision. They sought new ways to project their responses to the new possibilities. Painters, photographers, and film makers struggled to find valid new idioms with which to bring space and light into a vital focus. Magnificent artistic statements were made with pigments on canvas or recorded with light on photosensitive film. These artists were, nevertheless, frustrated and tantalized because the limits of their media narrowed and condensed the explosive range of the new experiences. Needed were a new scale of tools and a new scale of setting. Only by accepting light as autonomous, as plastic luminosity to be molded, shaped, and formed with the same limitless plasticity as the sculptor's clay, could the artist hope to find a valid correspondence between his new scale of experience and his artistic expression of it. And only a spatial surrounding generous enough in scale to shelter the explosive luminous tools could provide an adequate background. The isolated, sheltered, small space of a room in the home or in a museum is suffocatingly narrow for the fluid power of light in action. The new, rich intensities of artificial light sources, if used creatively, must be woven into the bigger fabric of the night cityscape. The mirroring of the shop windows and the interpenetration of mobile vistas, with their continuous transformations of space and form, must be accepted as background to creative figures shaped by the moving contours of actual lights.

Let me cite an example to show the imaginative teamwork of a group; it included the author, who is a designer and painter, a sculptor, a structural designer, a lighting consultant, and an architect and planner. They addressed themselves to the problem of providing a major, aesthetically and functionally valid landmark for a large city on the Eastern seaboard of the United States. The description that follows renders part of the joint report that outlines their plans, as recently submitted to the city authorities.

A central gathering place for all the activities of the downtown part of the city is a park surrounded by the city's newest and tallest buildings. Night and day the area is a thoroughfare for businessmen, shoppers, visitors, and pleasure-seekers. Because of its location at such an important point in the life of the city, it was clear that plans for this site must envisage something more than a mere expanse of paving and shrubbery. Trees, benches, and paving stones can identify an area as a park; but to serve as a true landmark, to invite to relaxation or to rouse excite-



obile light mural by Gyorgy Kepes, for office of K.L.M., New York City, 1959. Raymond & Rado, Architects

"The opportunity to try out these new tools in their new setting was given to me some years ago by a commission for a mural in the offices of a leading airline in the heart of New York City. The theme was the richness of the appearance of the nocturnal city from the air. The tool chosen was light in action. The mural, over fifty feet long and eighteen feet high, is a gray aluminum screen with some sixty thousand random perforations and larger cutouts. The sources of light are a multitude of incandescent, fluorescent, and spotlight bulbs and tubes behind the mural surface, controlled by timing and switching devices that actuate the circuits. The purpose was to create, by means of these devices, a fluid, luminous pattern with random changes, alive through the continuous transformation of color intensity, direction, and pattern. To avoid the mechanical repeat inherent in a mechanized device, many thousand different color filters were placed behind the perforations in random distribution. The underlying design idea was based upon a principle used in Peruvian fabrics: maintenance of rhythmic interplay between a constant pattern and a changing pattern. On the one hand, on the permanent pattern of the perforation a shifting color scheme was superimposed, and on the other hand, on the recurring time pattern of brightness there were superimposed cutouts and perforations varying greatly in shape and linear direction."

ment, to intensify its character as a reference point for both citizen and visitor, a park must have a dimension, a distinctive significance, which truly sets it apart as a special place.

To achieve the desired effect, the planners in this case proposed a Tower of Light, to be located at one corner of the park, outside a paved ellipse, where it will enjoy maximum visibility and lighting effect from a nearby bridge and an elevated walkway, as well as from a large part of the central downtown area. On the Tower of Light is to be a 25-foot-wide reflective screen suspended 100 feet above the park. At night, the many facets of this screen, covered with bright, durable gold leaf, will arrest the rays of a powerful light from the pool below and reflect them back down upon the entire park area. By day, reflected sunlight from the plaza and buildings picked up by the screen will bring to life the warm surface of the man-made sun.

Set in a shallow pool of water, two 160-foot towers of steel cable spun over a slender frame support the elliptical disk. The towers are set 30 feet apart and are securely anchored to the concrete structure of the parking areas below. The deceptive slimness of the mast, spreaders, and stainless steel filaments hides a strength known to builders of sailing craft for years but never before so purely applied to an architectural problem. Pound for pound, the towers far exceed the strength of the steel frames in the tall buildings that surround the plaza.

At night a cluster of powerful lamps, totaling 25 kilowatts, will direct a beam of light straight up into the air. The gold-leafed disk will scatter most of the reflected light back down upon the plaza, but portions of the beam will escape, creating slim shafts of light above in the night sky. The actual lighting elements will be contained in cone-shaped islets rising from the center of the pool. By day the reflective surfaces, pointing northeast away from the sun, will glow with light reflected from the windows of the surrounding office buildings. In contrast to the disk, the masts and cables will show a dark metallic luster. One will see them against the background of sky and glass as a tense, sharp network. Thus the impact of the Tower of Light lies not in bulk or monumentality but rather in its freshness and ingenuity, a spirited symbol of the energy of the new city.

The tower represents an opportunity to use typically twentieth-century forms and materials to produce, by imagination and technology, a solution to an urban problem. The problem of handling a small square at the nerve center of a city, set about with tall buildings, exists today on a scale more vast then ever supposed in any previous age. Of course there have been many light towers designed before, but they were mainly for a solely functional, decorative, or publicity purpose. This design is different in several essential ways.

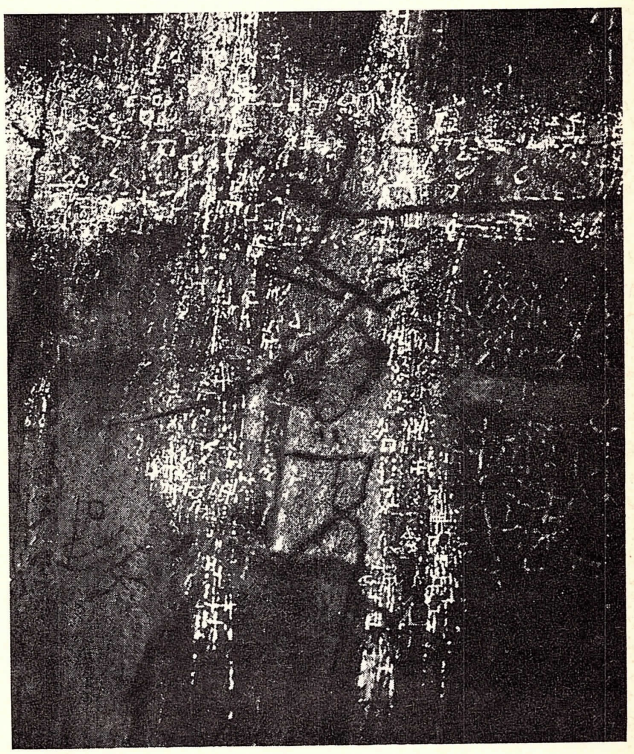
First, it is not an entity in itself, but an integral part of an integrating factor in a city area, the plaza. Each architectural spatial form has a day and a night life, the two frequently without any consistency. During the day, the legibility of the buildings and their interspaces is based upon patterns of light and shadow formed by a single light source, the sun. At night, however, the original unity of the buildings and their spatial community is shattered by conflicting interior and street illumination. To counteract this destruction of spatial unity, the light tower was designed to be another central light source, which could restore the legibility of a single pattern of light and shadow instead of a wild jungle of intercepting shadows produced by a multitude of lamps. Indeed, the single light source could serve somewhat as a fireplace in a living room. The gold-leafed, light-reflecting screen will give a warm glow of changing patterns and thus recall the never-resting richness of the fire on the hearth, a constant central symbol in the increased scale of man-created environment.

The second consideration in designing the tower was the awareness that each historical stage has had its preferred technical tools, that th most potent artistic imaginatio have always utilized the most a vanced technical potentials. Th stained glass of the thirteenth-ce tury cathedrals, the Crystal Pala of the nineteenth century are cases i point. Artificial illumination and ne structural principles are among th most fertile potential creative devic of this century. The tower and th reflecting screen are based upon a vanced structural principles. Th light sources exploit powerful illum nation tools. Together they can stan as a new art form—a luminous sculp ture radiating its image far beyon its actual location and function—part of the total cityscape, a lan mark.

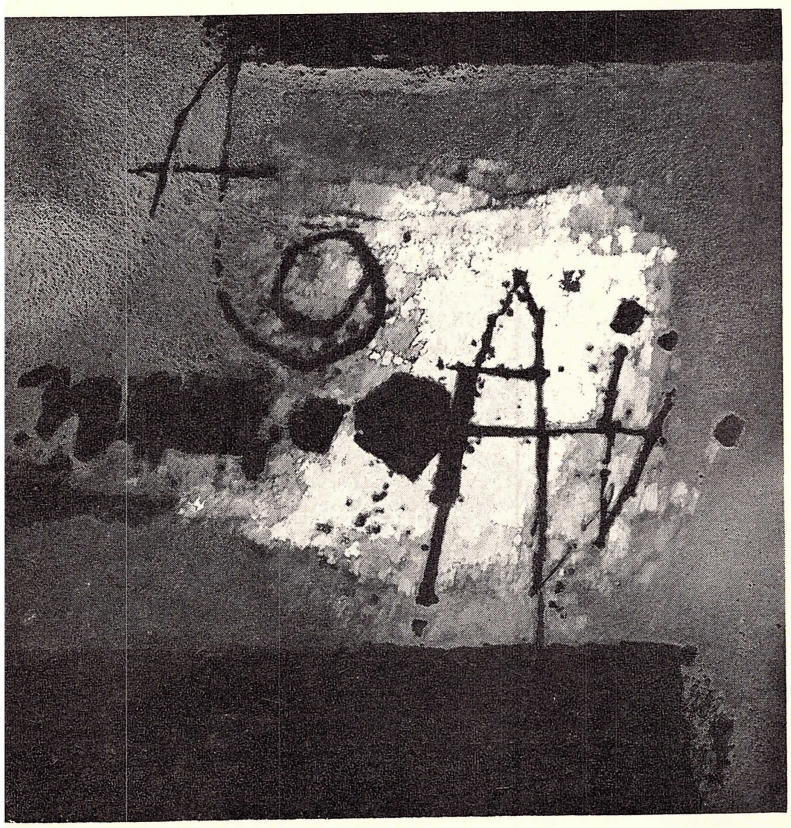
On a smaller scale, there are poss ble pictorial and sculptural uses c light, the use of luminescence, or th channeling of light along an elab rate linear path by means of bundle optical glass fibers. Photosensitiv glass, color filter overlays, polarize screens, diffraction grating are sti other possibilities. Projected ligh could be explored in terms of it kinetic-graphic potential, as used i animated films. It could also be uti ized in transient murals in whic opaque or transparent flat surface or sculptural reliefs are brought int common play.

The devices of stage designer suggest other new possibilities Light could be articulated in its tim sequence, and the combination o stroboscopic illumination with stabl light sources used to produce lumi nous animated sculptures.

At a more technical level, optica light and color phenomena could b applied to investigate natural proc esses. Technical investigation o chromatography, photoelasticity, an so forth could be developed on an ex ploratory basis without immediat scientific goals as possible new tool for reading nature. We should re member that at one time use of oi paint or photography was just a "foreign" to, and had to be just a much "learned" by artists as ar these new tools for expressing idea visually.



Painting by Gyorgy Kepes. "City Lights," 40" x 72," 1959



Painting by Gyorgy Kepes. "Trespassing Light," 60" x 60," 1963

"When evening comes and the lights are turned on, the city is transformed, however chaotic, blighted, or ugly its daytime face. Points, lines, plane figures, and volumes of lights, whether steady or intermittent, moving or still, white or colored, whether from windows, signs, spectaculars, headlights, traffic lights, or street lights—all compose a fluid, luminous wonder. It is—again at its best—one of the grand sights of our age. Although this impressive display is produced almost by accident, a by-product of utility, its magnificence reminds us of the concentrated and ordered beauty of the great windows of thirteenth-century cathedrals. This accidental splendor contains the promise of a new art, the orchestration of light, on both limited and vast scales."

2. Environmental Art and the New Technology

There are now tremendous new opportunities to reshape our spatial environment. Our technical knowledge and competence offer us many solutions for a more comfortable world; they also offer us the means of revitalizing the urban environment by means of new artistic organization and new ways of projecting, in visible symbols, the current meaning of corporate existence.

For various reasons, these new opportunities have not yet been explored. Our best artists have concentrated on personal comments, communicating their feelings and thought through the channels of galleries, museums, or private collections. Their elegiac and lyric—or acrid!—personal comments are significant, to be sure; but there is a need for a parallel visual summation in the large-scale physical environment. In the last few decades, projects on an immense scale have transformed our cities, but very few of them have had a convincing artistic focus. In fact, there is not one new environment which is comparable to the work of some of our easel painters in expressive intensity. The gap between our new opportunities and the artists' willingness to grasp them—to say nothing of the adequacy of their knowledge for the task—is a serious one. The transference of thinking to such a broad artistic scale cannot be suddenly brought about. There are many human, aesthetic, and technical issues that the artist must understand before he can function within this new and vast scope. Some first attempts have proved abortive because the artists involved had not enlarged their vision or learned the technique of collaboration. They were untutored in those technical potentials of our industrial civilization that can offer them a new palette for their work.

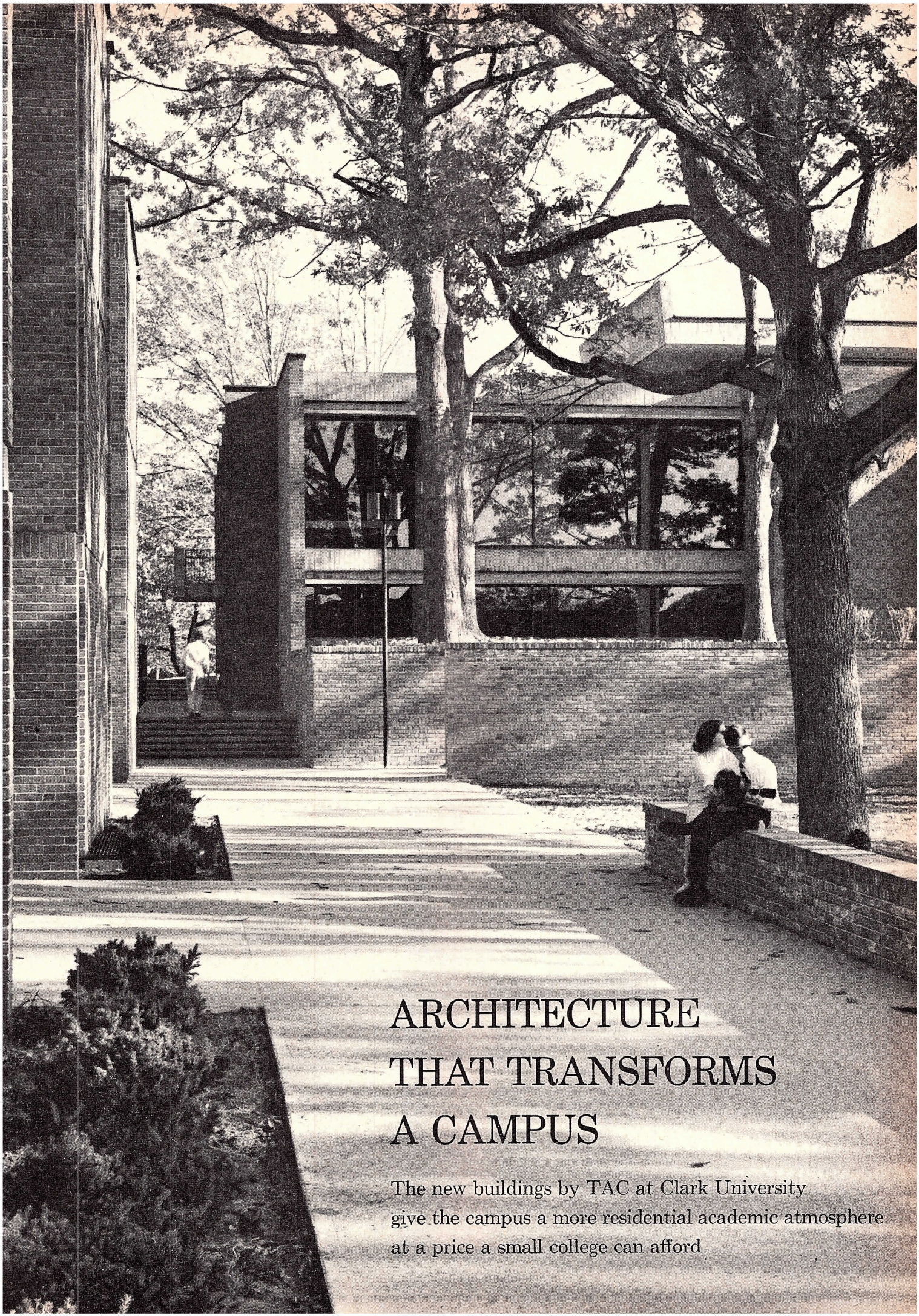
There are, then, three basic conditions that must be fulfilled if our artists are to live up to the new tasks. First, they must cultivate those neglected areas of their creative imaginations which can render them responsive to the new scale. Second, they will have to learn to adjust to and communicate with architects, engineers, city planners, and many others who are working at reshaping the environment. Third, they will have to learn to explore the new technical potentials needed to implement their findings.

The visualization of new opportunities cannot be taught, but it can be stimulated. Intense work in a cooperative spirit by a group of artists invited to join in such an undertaking as has been proposed can bring about a type of imaginative thinking which the individual artist could hardly achieve alone. A prototype task would be, for example, the chromatic organization of factories and offices where all spaces, colors, textures, and light are structured in an ordered pattern with a contrapuntal sequence. This could then be worked out further at different scales, each with its own demands and opportunities. As another project, city areas and their component form elements could be evaluated in terms of their visual intensity in a sequence of experiences. The same thing could be done with large-scale sculptures and murals in such a way as to give value to their sequential meaning as well as their individual quality. Form in its broadest sense could be considered on pedestrian, vehicular, or aerial scales. Again, these rough outlines will achieve concrete direction and meaning only as they are worked out in the collaborative projects of the painters, sculptors, architects, city planners, illumination engineers, and others.

A continuous give-and-take among the group, together with help from the outside, will develop techniques of teamwork without curtailing the initial intensity of the creative ideas. Techniques of model-making, films, or slides could be used to simulate the full-scale reality. Furthermore, learning to use the new tools, implements, and media of industrial production will reinforce the ideas and techniques of collaboration. The sculptural possibilities of reinforced concrete, prestressed concrete forms, plastic, stainless steel, aluminum, new techniques of welding; and the potentials of prefabricated units, pictorial use of baked enamel on steel, luminescent walls, photosensitive glass, spraying technique ranging from metal spraying to color spraying, and new adhesives are only a few suggestions of the technology waiting to be explored.

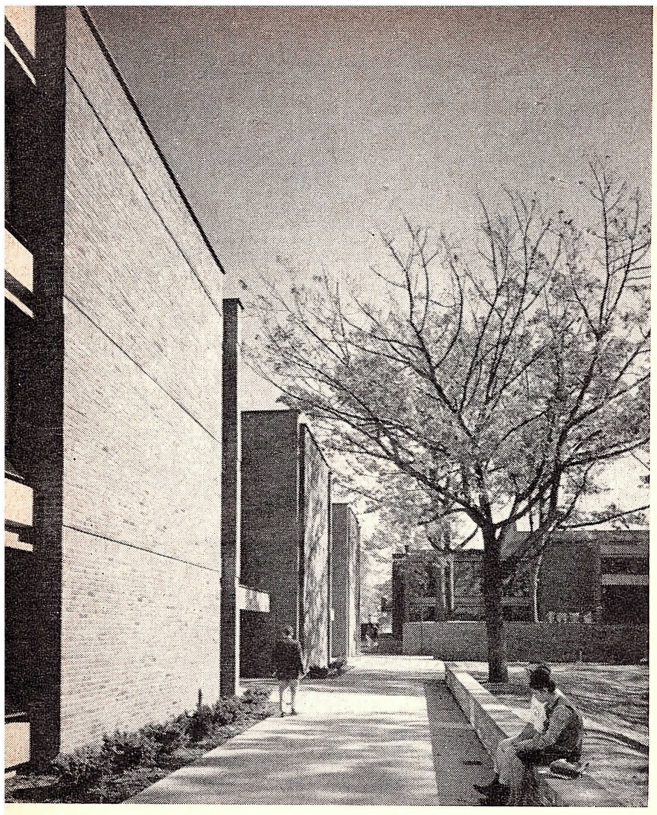
In the Middle Ages, artists in Italy or Flanders did not limit themselves to one area of specialization. They were willing and able to participate in any visual task. Designing a tournament or a ceremony was no more outside their range than painting an altarpiece or carving a cathedral molding. They sought to complement the starkness of contemporary life, with its continual perils of disease and hunger, by an intoxicating luxuriance of visual fireworks. The Middle Ages not only needed to express, but did express, communal rejoicing in feasts of colors, in pageantry, in church windows. Our fears today, our perils, are different, but our industrial civilization nevertheless is fighting for its own heraldic embellishment. The change of seasons which throughout history has enriched our lives is now for a large fraction of urban dwellers only a rare experience. If we are to turn our cities into congenial human environments, color and light, form and texture will have to be domesticated in a creative sense.

These remarks have indicated in rough outline some of the rewards possible from collaborative endeavors as the habit of continuous give-and-take matures. We need to establish new relationships in which artistic forms will be an integral part of our man-created surroundings, not mere decorative face-lifting or prestige gestures. New technical tools and materials; new approaches to teamwork among creative individuals in the arts and in the sciences with different backgrounds and training; new awareness of the interplay of visual factors in the dynamic urban scene—these are the challenges to collaborative daring.

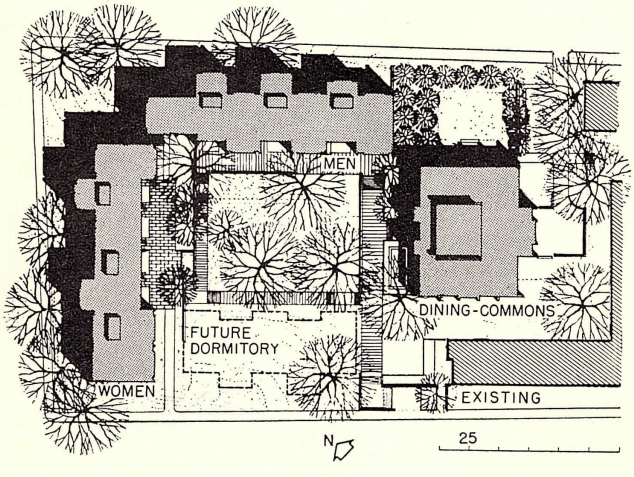


ARCHITECTURE THAT TRANSFORMS A CAMPUS

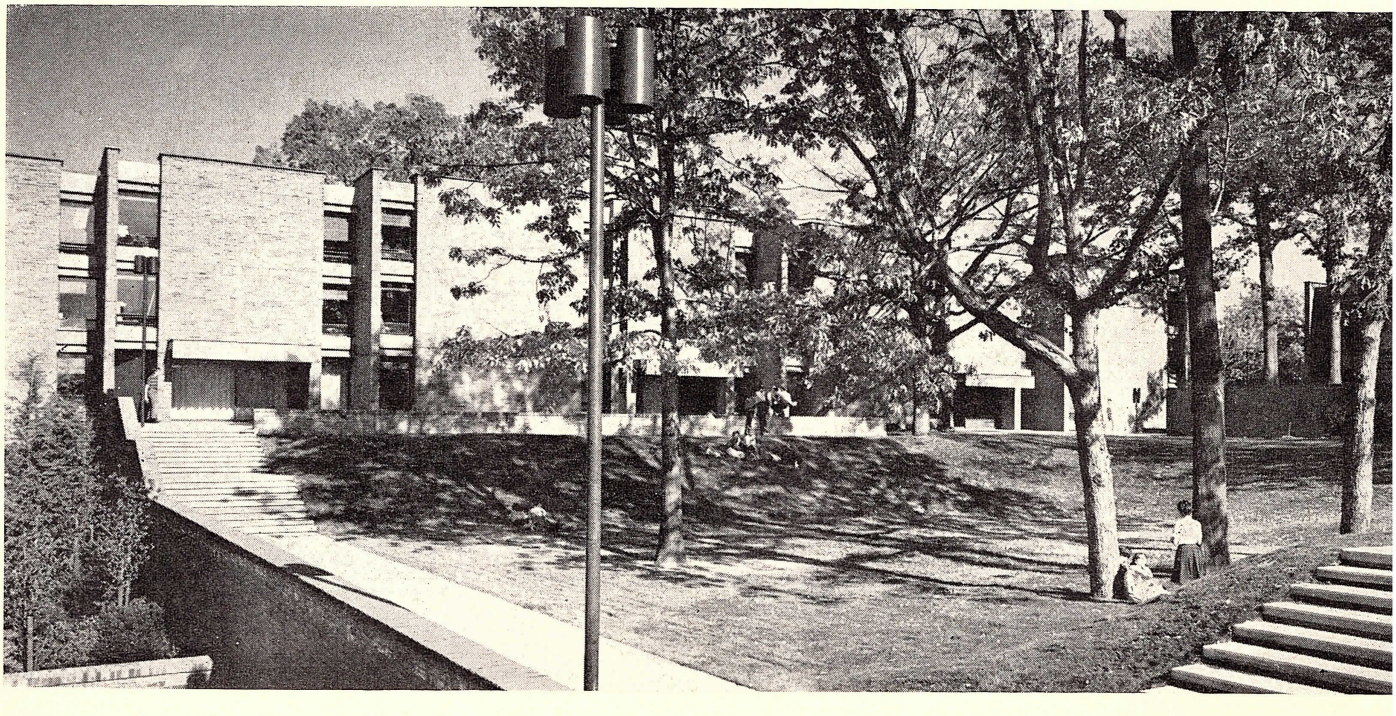
The new buildings by TAC at Clark University give the campus a more residential academic atmosphere at a price a small college can afford

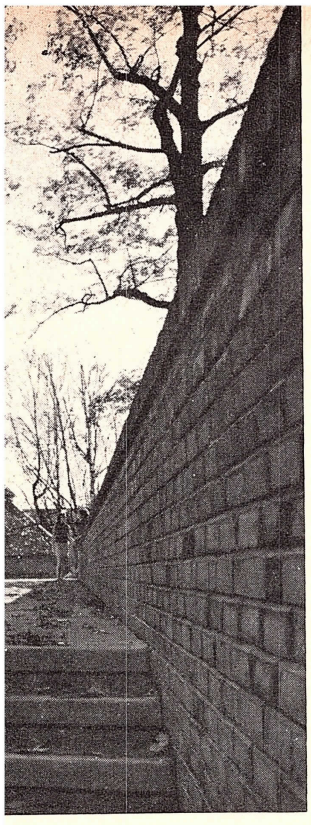


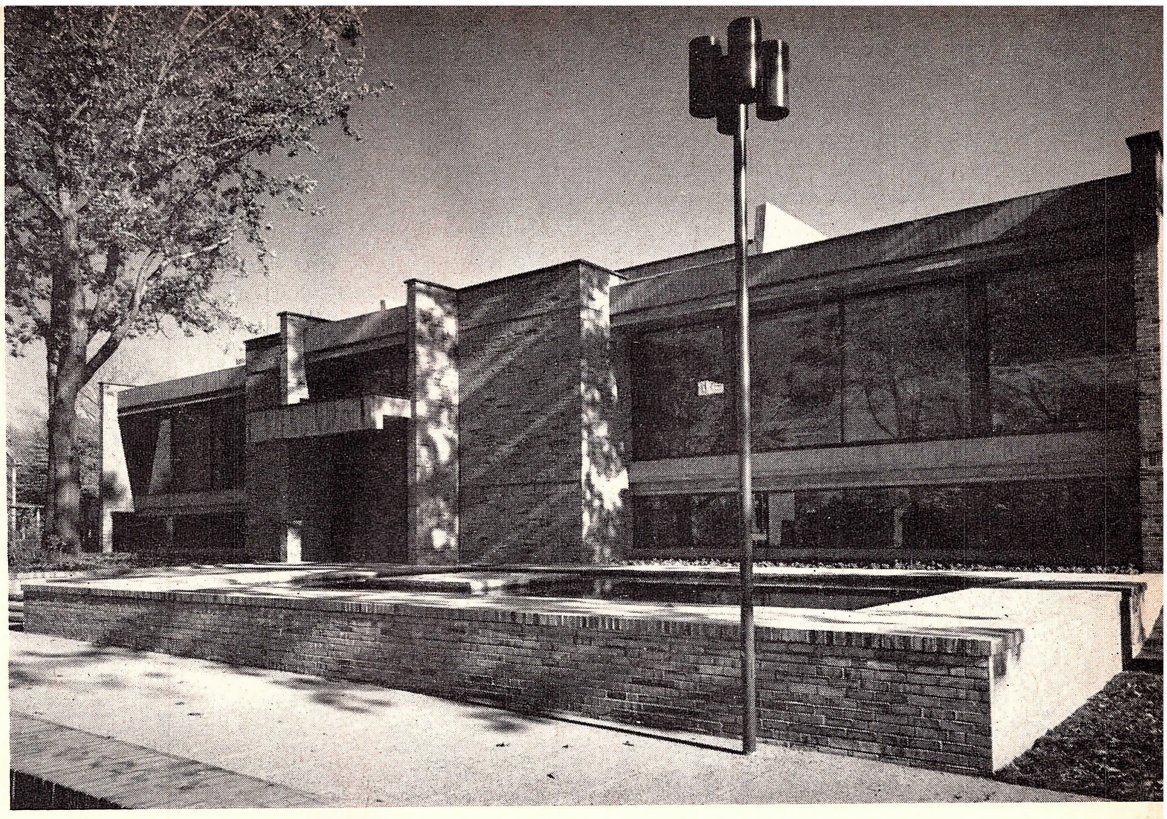




DORMITORIES AND DINING COMMONS AT CLARK UNIVERSITY

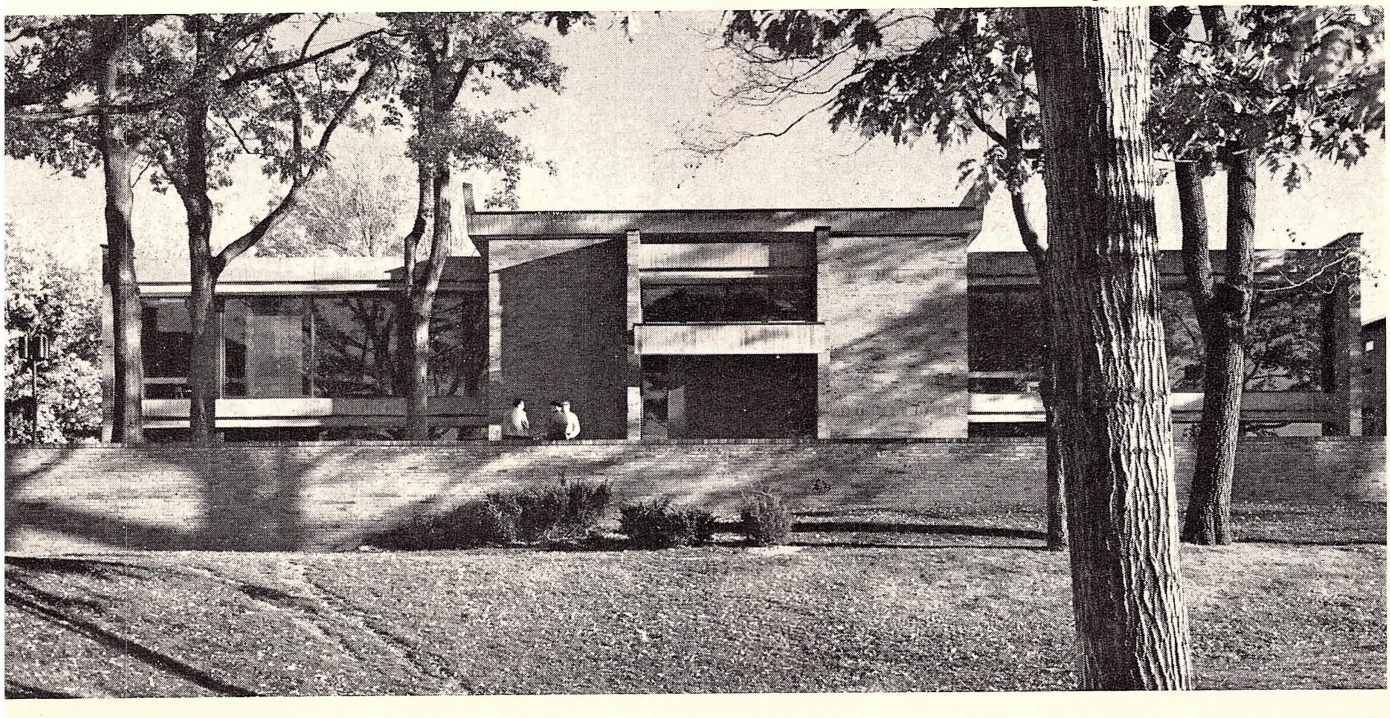


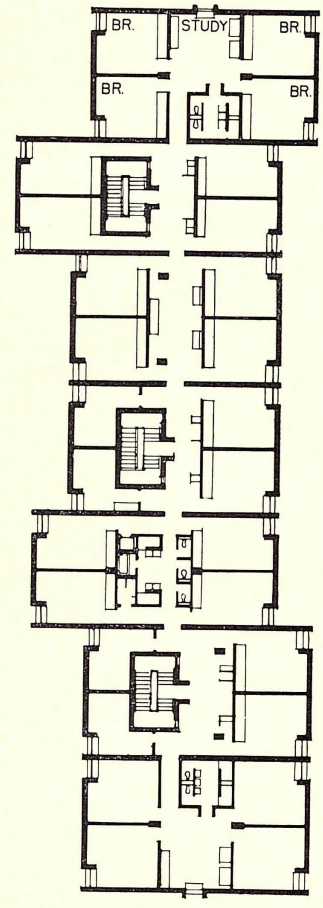




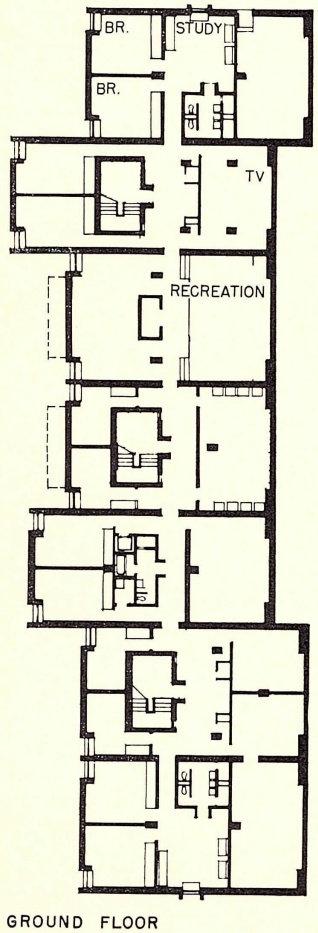
The Architects Collaborative has designed far more for Clark University than two new dormitories and a dining commons; the new buildings provide the beginnings of a different campus character. Clark has a distinguished academic tradition, but it never used to set much store by a collegiate atmosphere. Founded originally as a graduate school, and with many of its students commuting from homes in the surrounding area, Clark has tended to confine itself to the essentials of education, leaving its more social aspects to take care of themselves. As a consequence, the ark-like Victorian buildings at the outskirts of un-photogenic Worcester, Massachusetts, could hardly be compared with the dreaming spires of the ideal college campus. Clark, however, is going through a period of expansion; and part of the instructions to TAC, when the master planning studies began, was the University's desire to give the undergraduate colleges a residential campus character. The dormitories and commons, the first of the new buildings to be executed, do all that and more, at a price well within the cost of standard dormitory buildings.

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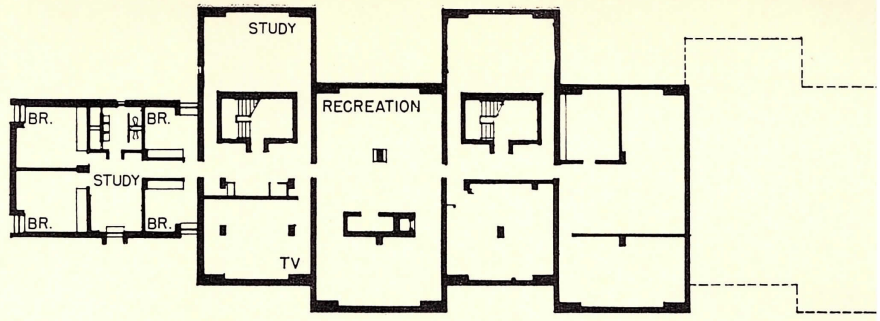




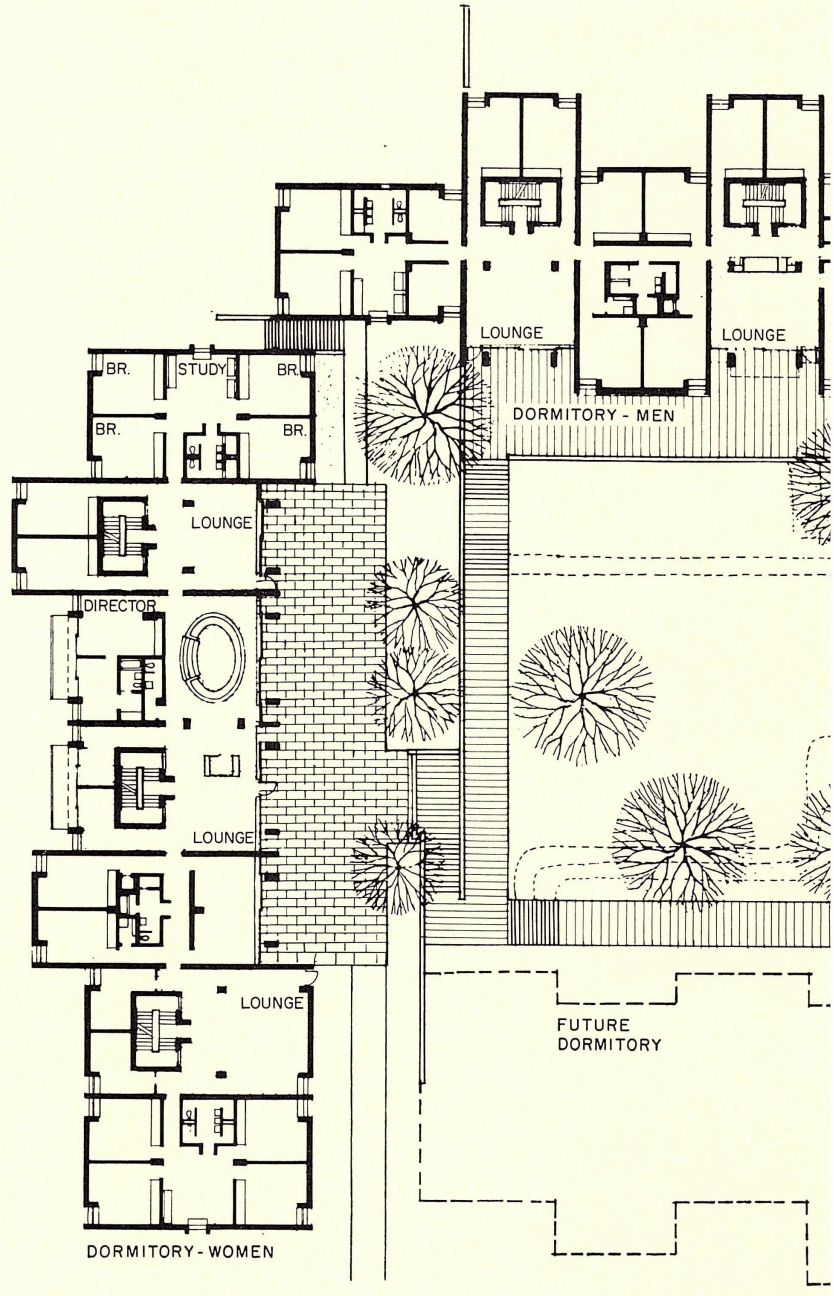
SECOND & THIRD FLOORS



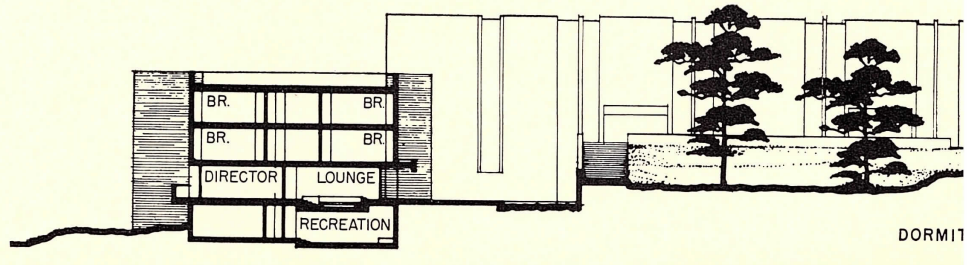
GROUND FLOOR



GROUND FLOOR

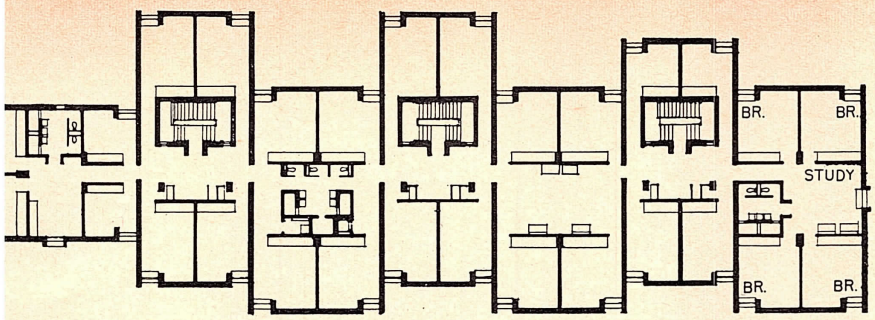


DORMITORY - WOMEN



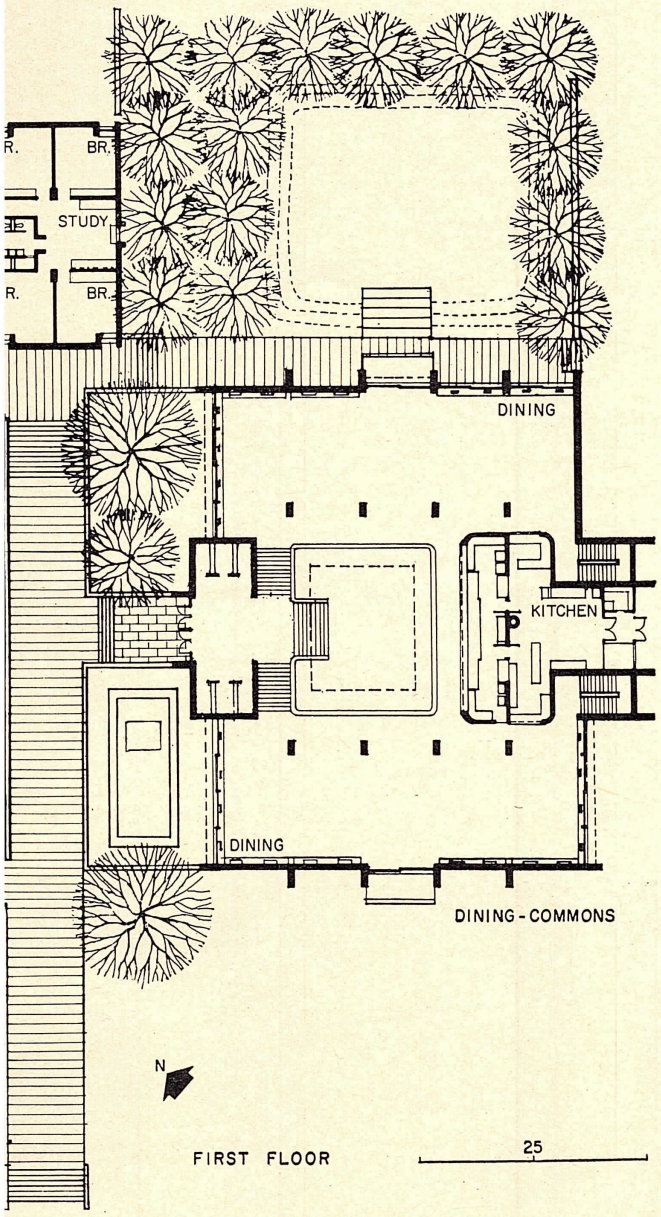
DORMITORY - WOMEN

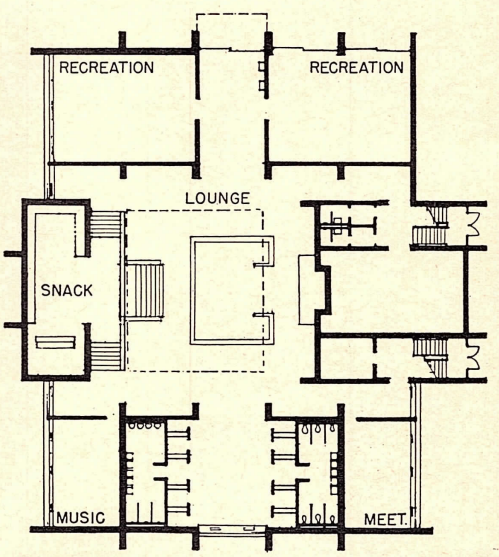
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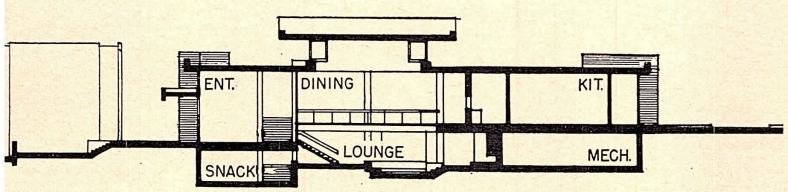
ID & THIRD FLOORS

DORMITORIES AND DINING COMMONS AT CLARK UNIVERSITY



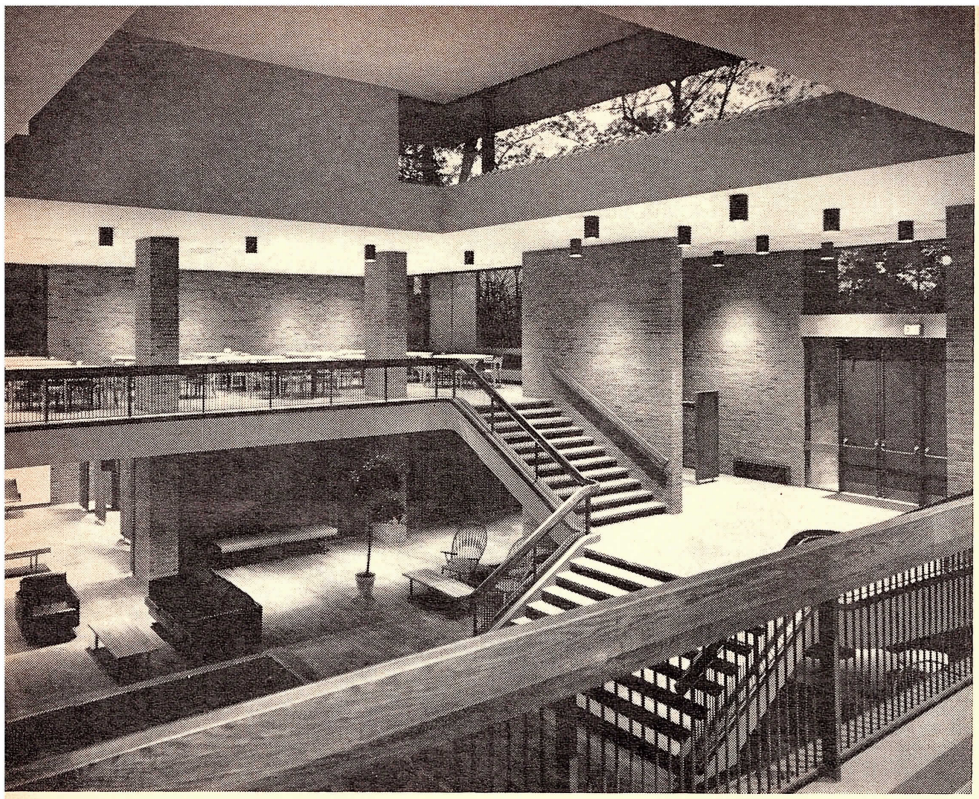


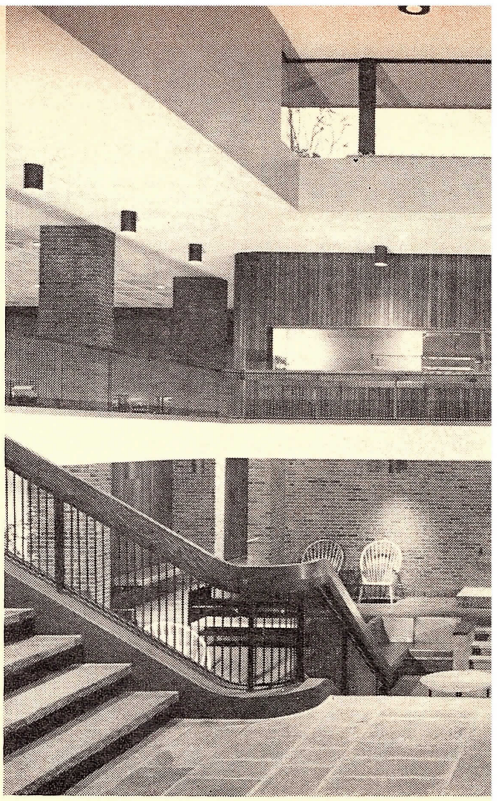
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DINING-COMMONS

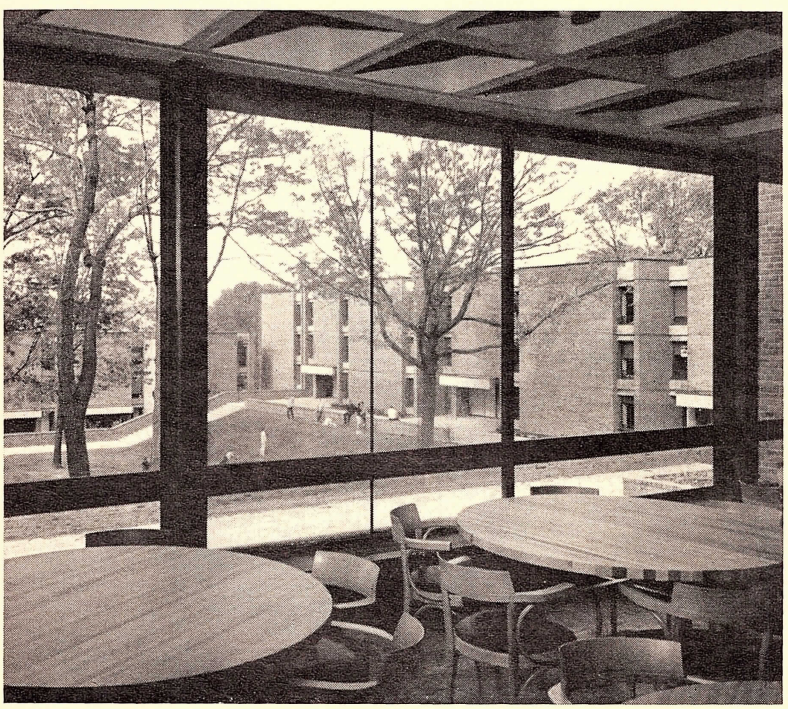
The new buildings occupy most of a city block adjacent to the old main campus, and there are two existing university buildings along the street on the east side of the site. The dormitories have been placed so as to form a quadrangle, with rooms grouped on a staircase system. The ground slopes steeply across the site, permitting additional dormitory rooms on the ground floor of the downhill side. The dining commons is entered on the half level, with lounge and recreation rooms below, and dining and kitchen facilities above.

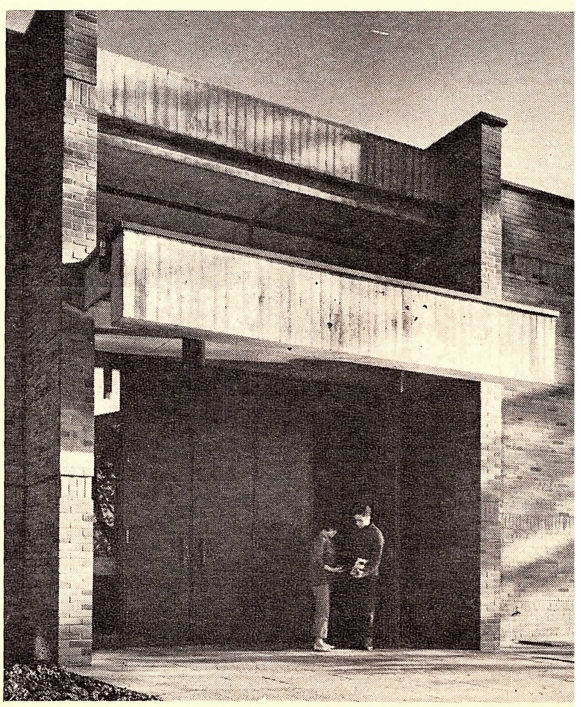


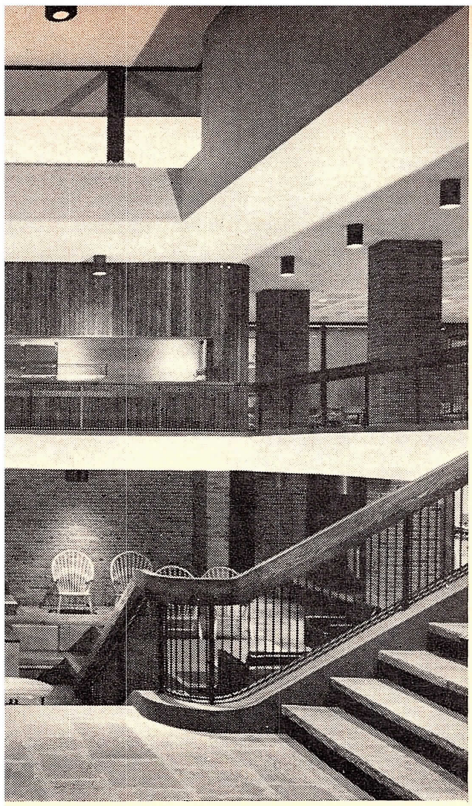


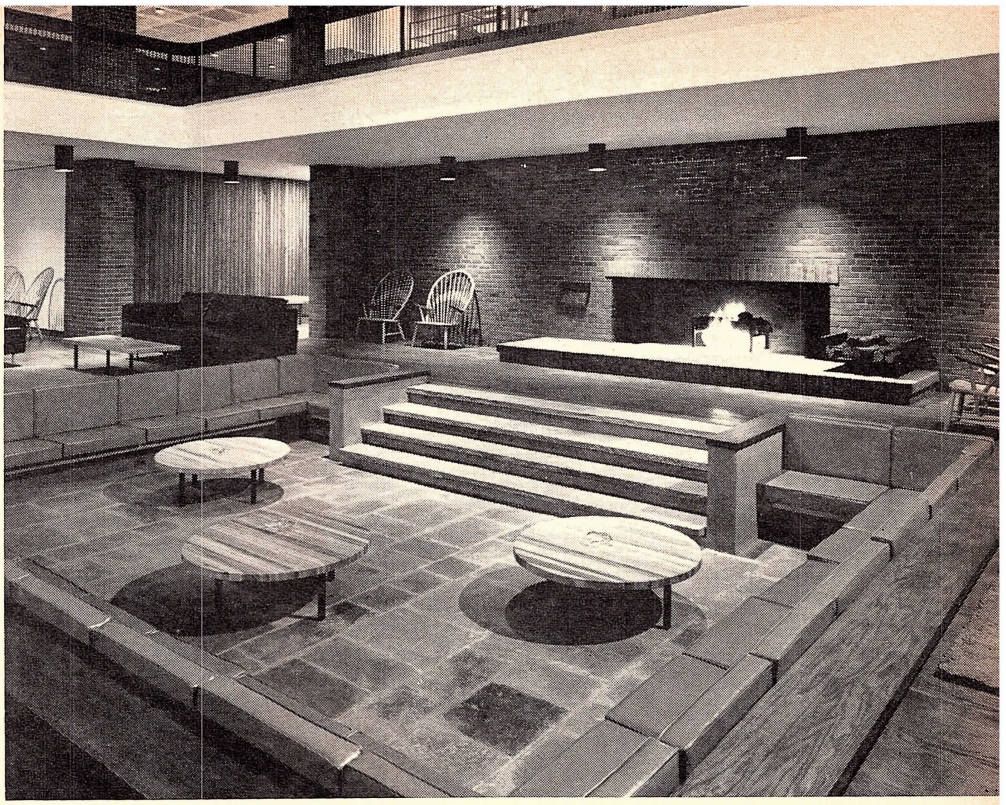
DINING COMMONS AT CLARK UNIVERSITY

The dining commons building makes use of a tall central space to give unity to the various activities that take place in it. From the broad landing just inside the door the visitor can take in at a glance most of his possible destinations in the building. The cafeteria serving lines are on the upper level, straight ahead across the open well, and can be reached from either direction. The two dining areas look out over the quadrangle and towards views which have been improved by plantings. They also look at each other across the well.



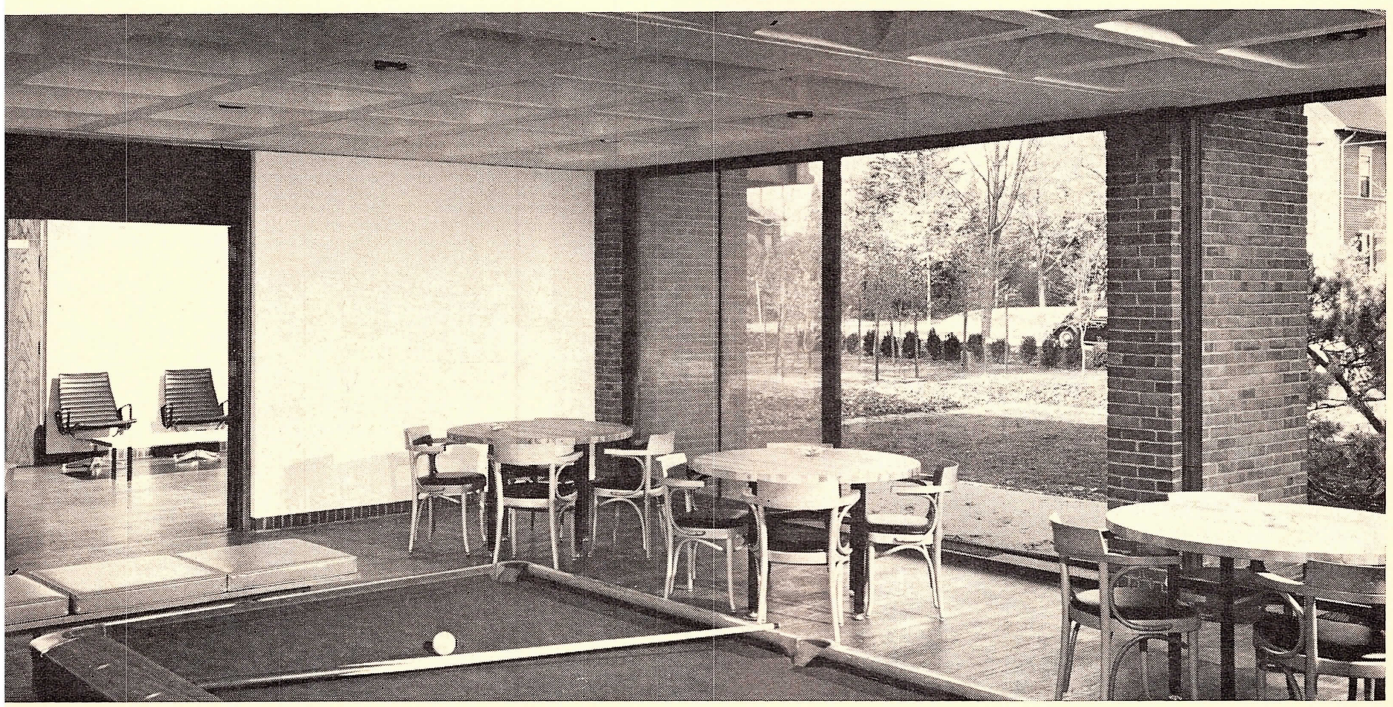


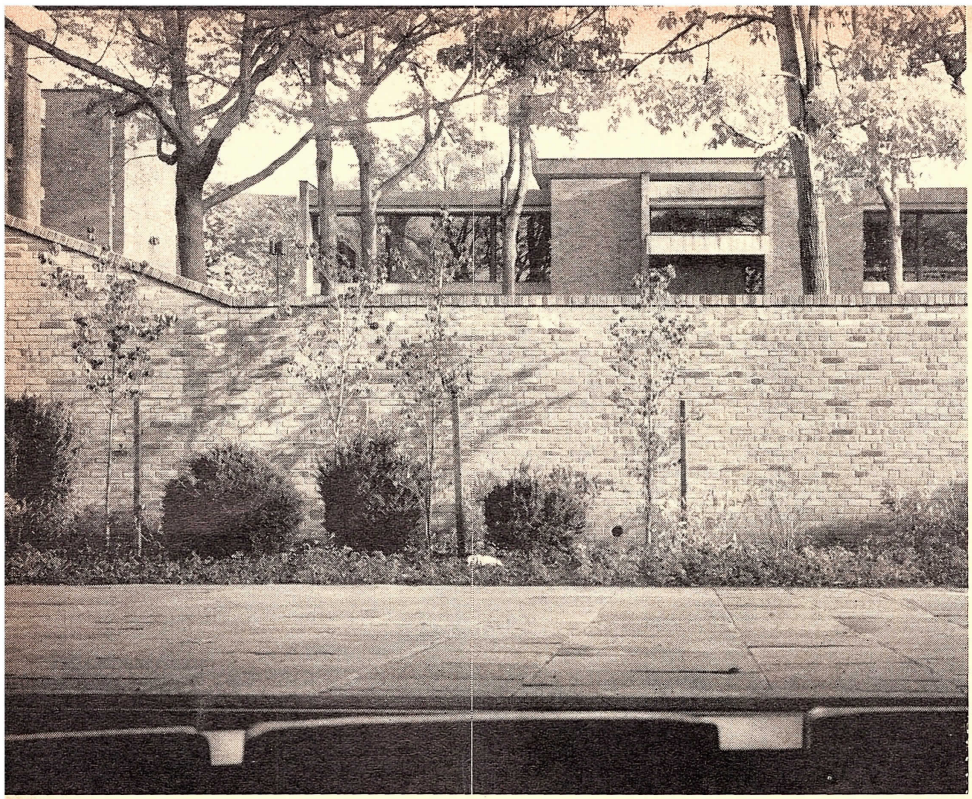


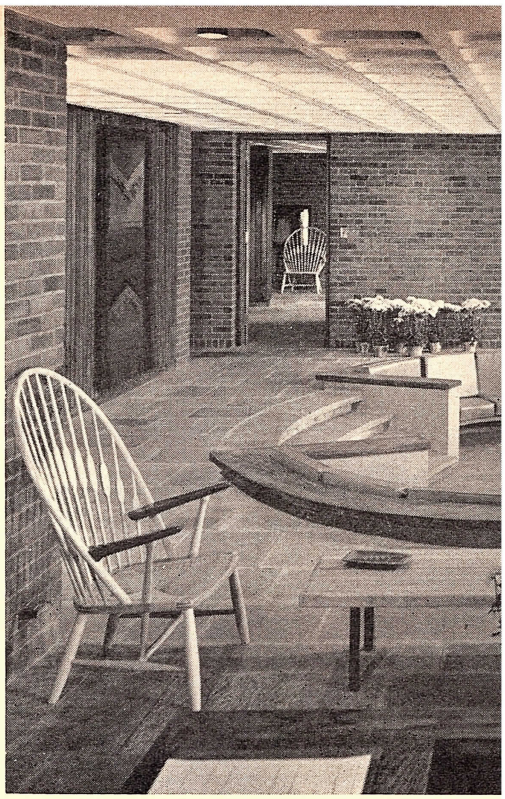


Downstairs, there is a conversation pit large enough to hold a meeting, or to contain several different groups; and there are other furniture groupings of different shapes and sizes around it. On the ground floor there are also two recreation rooms for billiards, cards, and ping-pong, a music listening room, and a meeting room for the student government. An intimate little snack bar is placed underneath the entry landing and a half level below the floor of the main room. It is a low, dark space that exaggerates by contrast the height and lightness of the central room.

The central well does dictate a symmetrical plan with a rather rigid distribution of functions. The architects feel, however, that the sense of occasion provided by a large, formal space is ample compensation. Clark has never had a central place for leisurely social gatherings, so that this building is presently the focal point of undergraduate activities. In time, as the master plan is carried out and the University continues to grow, other activity areas will be created; and the dining commons will become the center for a self-contained residential quadrangle.



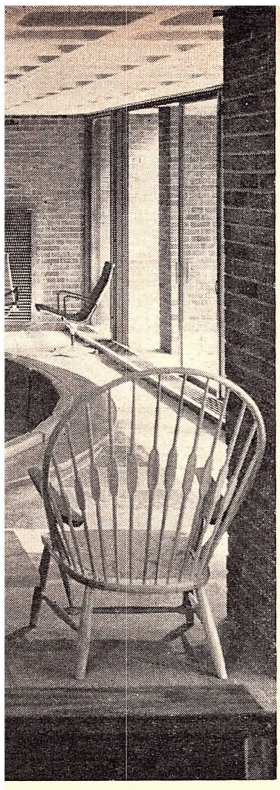


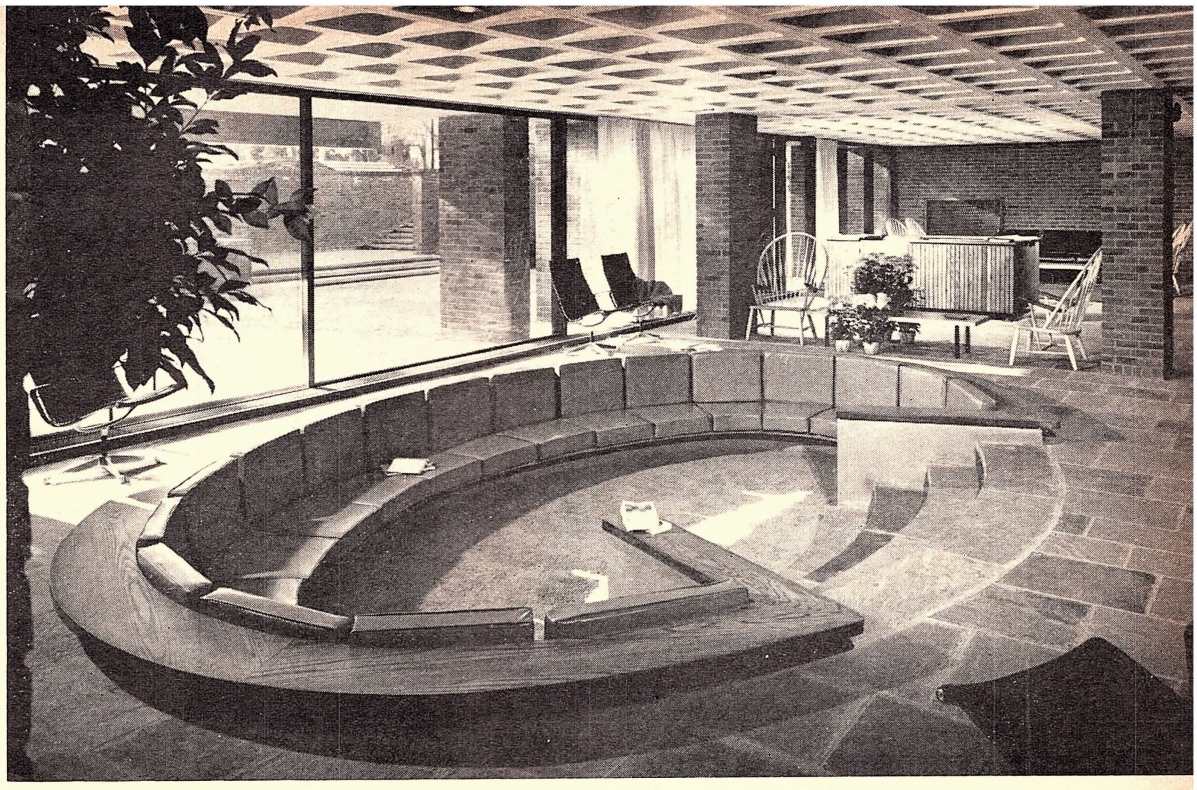


DORMITORIES AT CLARK UNIVERSITY

The men's and women's dormitories house a total o 296 students, and, when the third building complete the quadrangle, it will bring the total up to 400. Th dormitories are divided into house units of abou 50 students, with rooms arranged around individua staircases. Each floor of the unit houses a subgrou of between 16 and 18 students, in a cluster of facilitie that includes double and single rooms, a bathroom and a common study area. Although the floors inter connect from staircase to staircase, there are no lon corridors, and each subgroup can have its own iden

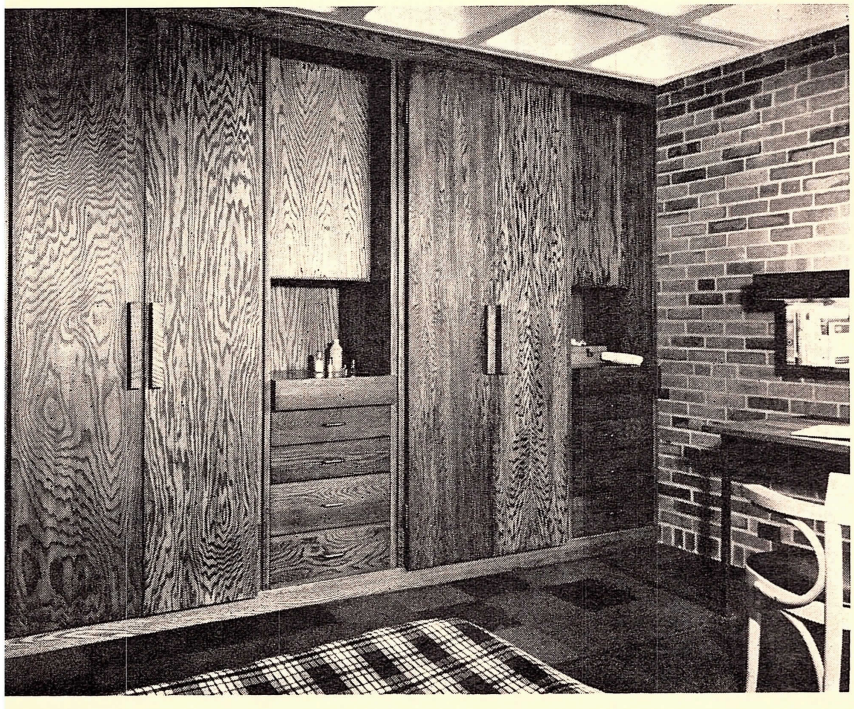






ty. Individual rooms have sleeping and study areas eparated as much as possible, and are equipped with arefully designed built-in cabinets and desks. Each ormitory also has pleasant areas for entertaining at ne main entrance level, special study rooms, and a nack bar.

The dormitories and dining commons were financed lmost completely by a long-term loan from the Hous-ng and Home Finance Agency. The total construction ost was $1,919,155, including site work and built-in urnishings and equipment, or approximately 19 dollars a square foot. The total project cost, including fees, administrative costs and interest during construction, was $2,135,104; which was $25,000 less than the final estimate. This means a cost per student of $5,474, which, according to Robert M. Hyde, Clark's executive vice president, falls comfortably in the middle of the cost range for recent college housing that has been financed by the HHFA in New England. "Good evidence," Mr. Hyde adds, "that college buildings can be functional, well designed, and economical as well."

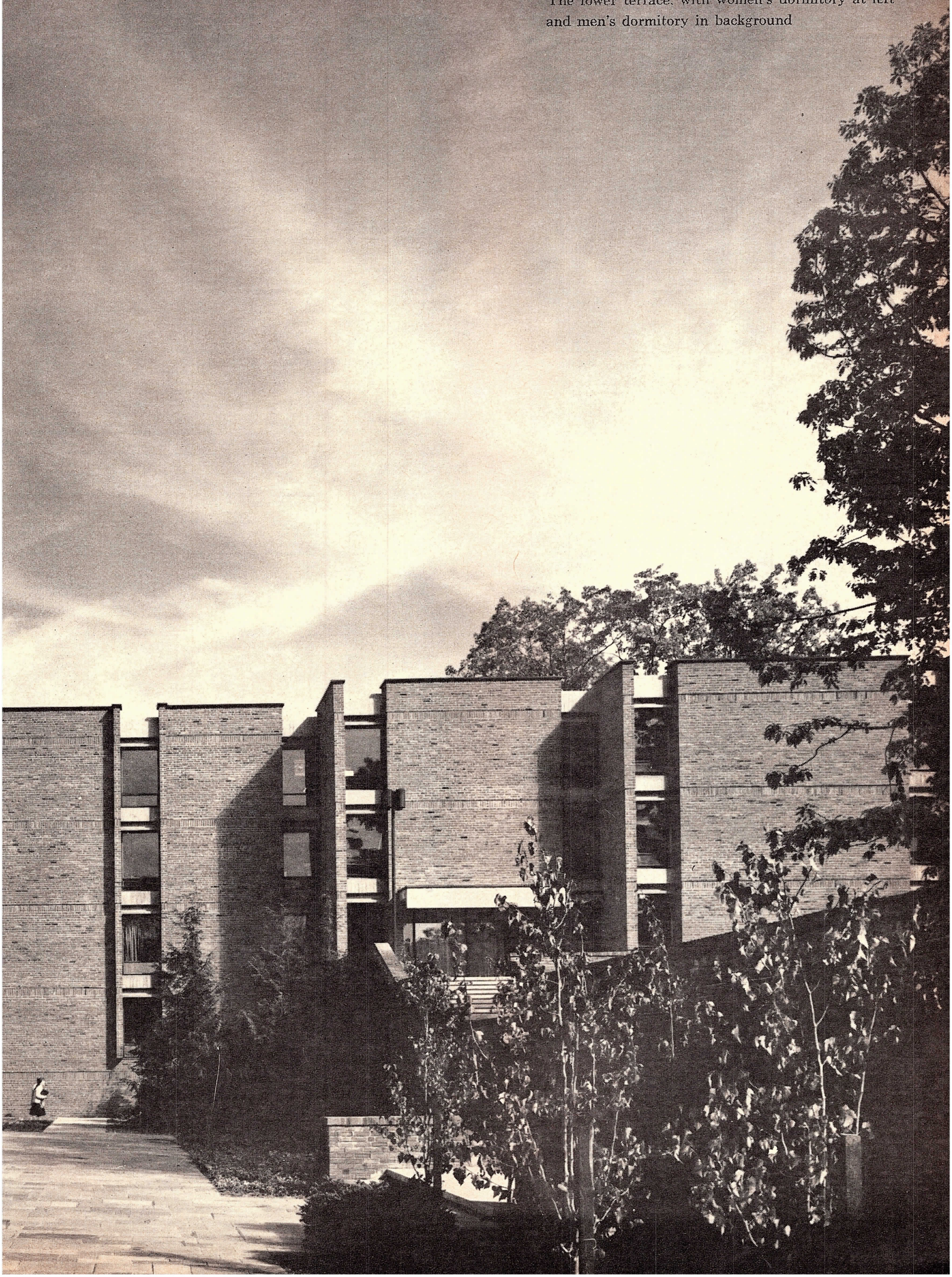


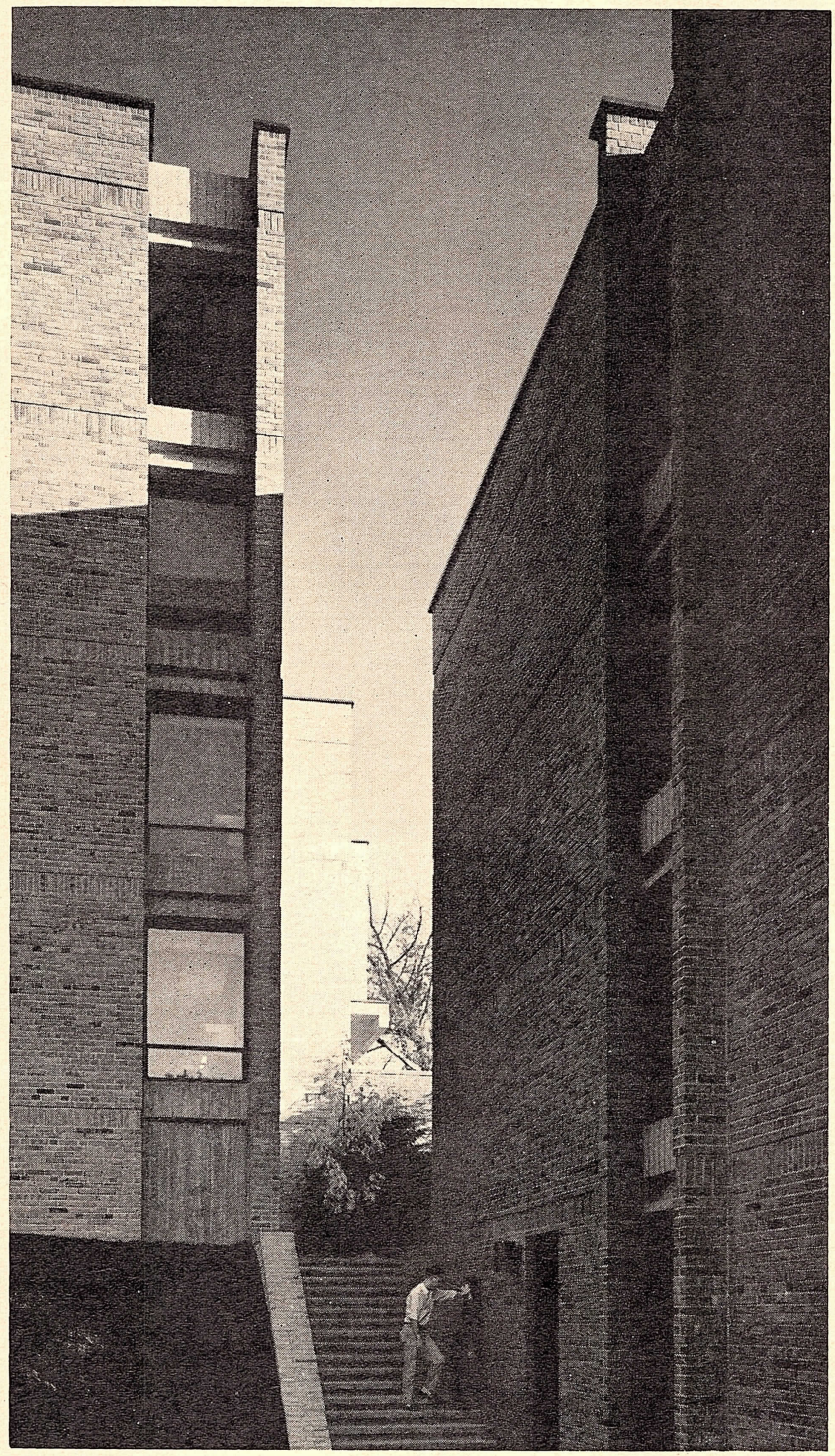




DORMITORIES AND DINING COMMONS AT CLARK UNIVERSITY

The lower terrace, with women's dormitory at left and men's dormitory in background





Clark University Dormitory
and Dining Commons Quadrangle,
Clark University,
Worcester, Massachusetts

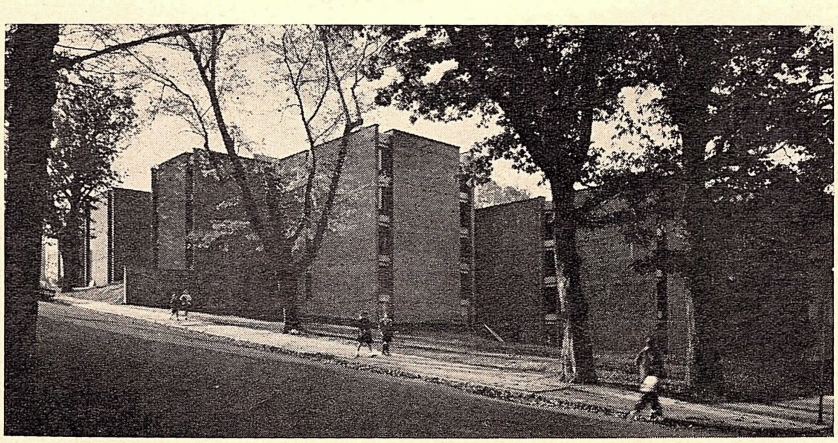
ARCHITECTS:
The Architects Collaborative
Norman C. Fletcher, partner in charge
Herbert Vise, associate in charge

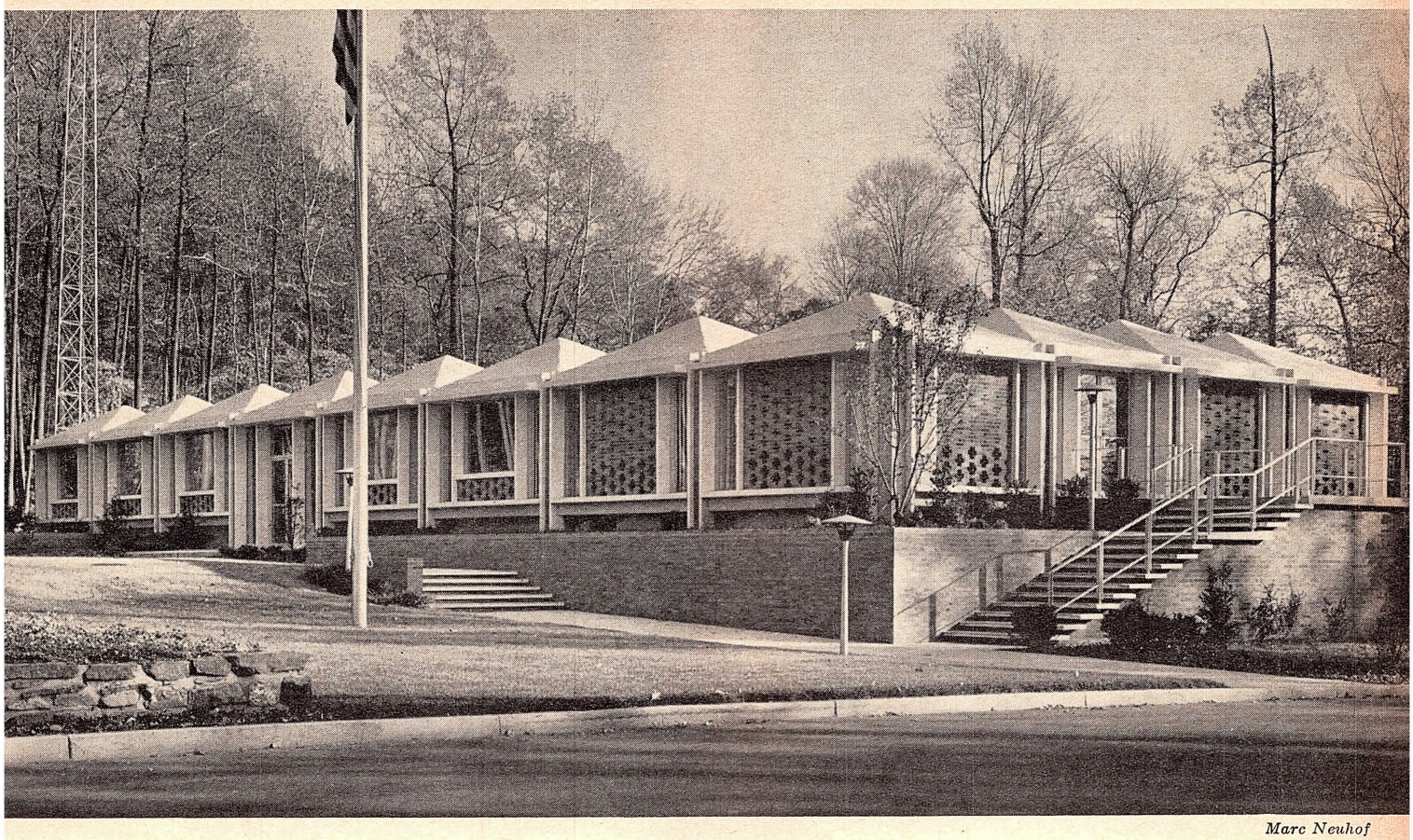
STRUCTURAL ENGINEER:
LeMessurier Associates Inc.

MECHANICAL ENGINEERS:
Fitzemeyer and Tocci

ELECTRICAL ENGINEERS:
Maguire Engineering

GENERAL CONTRACTOR:
Granger Construction Company

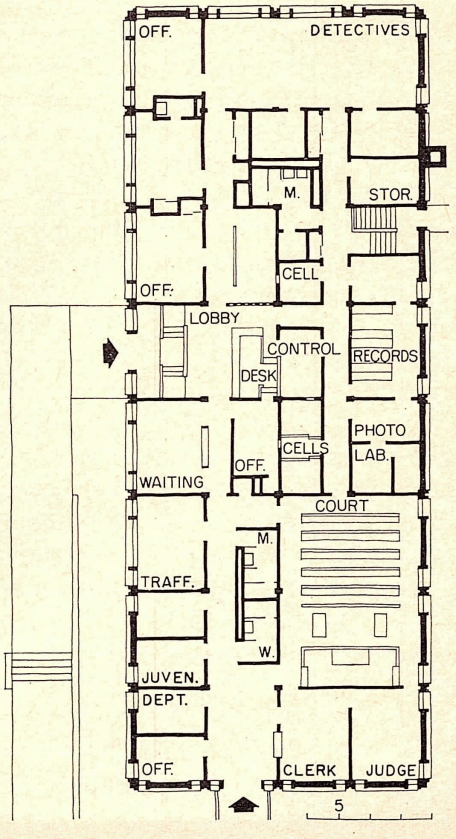




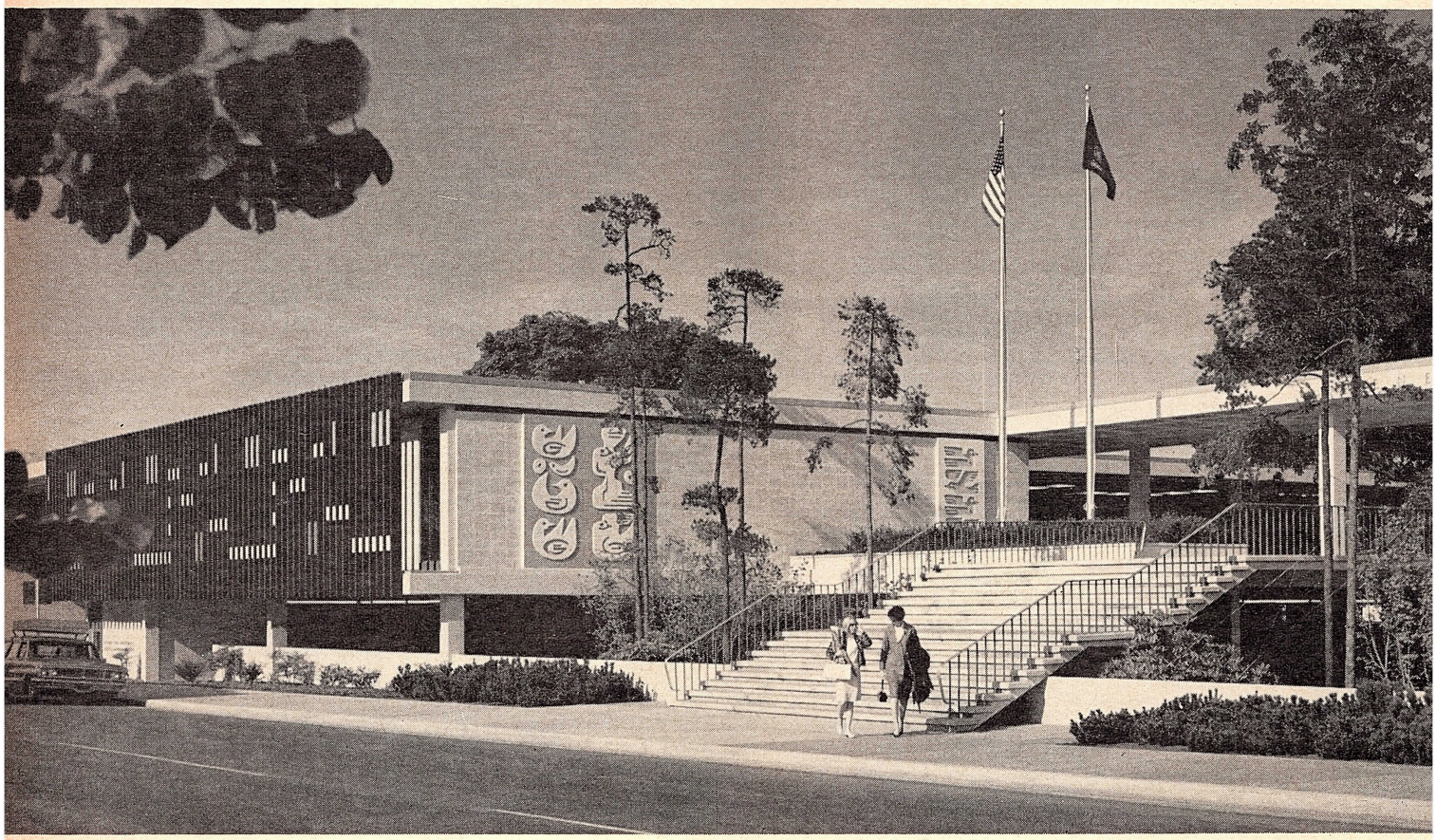
Marc Neuhof

POLICE BUILDING FOR A SUBURBAN AREA

Suburban communities usually place all municipal facilities in one building but a few, like Paramus, have provided a separate building for the police department. This building for a community of 25,000 population, is essentially simple, consisting for the most part of a series of offices grouped by relationship of function but permitting separation of certain areas from direct relation to main police activities. For instance, since a juvenile department and a municipal court are also incorporated in the building, and neither needs (or necessarily should) be directly related to the main police function, these are located at one end of the building and have their own entrance and lobby. Public circulation to administrative offices also is separated from internal circulation for staff and for prisoners. Because the program suggested separate and private offices for most of the services provided, an open plan was not feasible; shaping the ceilings of the various spaces, however, gained interest and effect. These shapes are reflected in the lively roof forms which will also be seen from above when the site is fully developed.

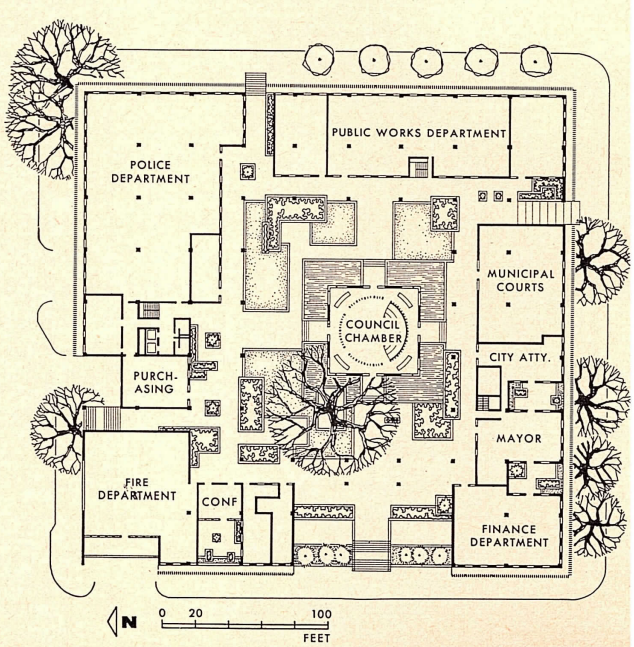


Police Headquarters, Borough of Paramus, New Jersey. Architect and engineer: Thomas G. Fox, Robert O. Becker, associate architect; contractor: G. C. Romagnino Company



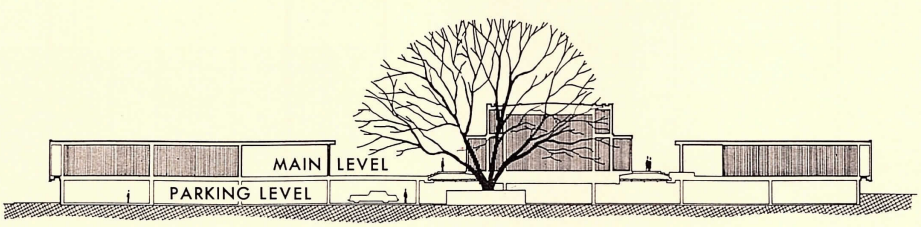
CITY HALL BUILT FROM WINNING DESIGN

This handsome civic group, incorporating all of the city's offices within its block-square dimensions, resulted from a $2,400,000 municipal bond issue and a statewide two-stage competition for its design. The winning team (originally Stafford, Morin & Longwood) is a Eugene firm. The solution chosen uses the elegant device of a raised plaza on which to place the structures. This has special advantages: a monumental stairway approach at the main entrance, preservation, as a key part of the landscaping, of a large and old walnut tree, and provision of the required parking under the plaza. The council chamber, set in a reflecting pool (whose translucent bottom daylights the parking area), is the focal point for the plaza. Works of art, specially commissioned from Northwest artists, symbolizes the region's natural features and attributes. The building won an award of merit in the Southwest Oregon, A.I.A., 1964 honors program.



City Hall, Eugene, Oregon. Architects: Morin & Lockwood; structural engineer: W. W. Wilson; mechanical engineers: Marquess & Marquess; electrical engineers: Marquess & Yates; landscape architects: Lloyd Bond & Associates; artists: Jan Zach, sculptor and Andrew Vincent, muralist; contractors: Gale M. Roberts Company

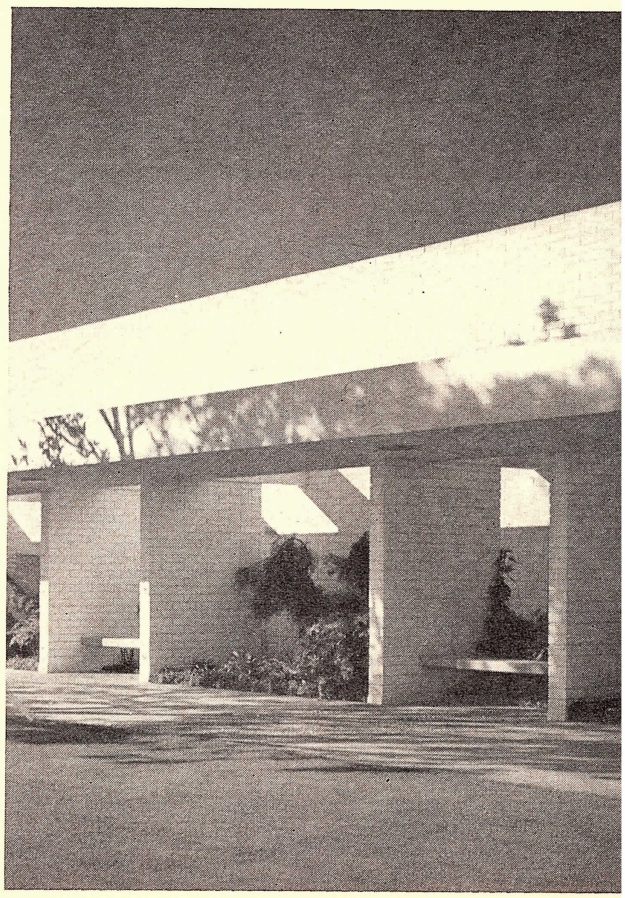
Hugh N. Stratford photos



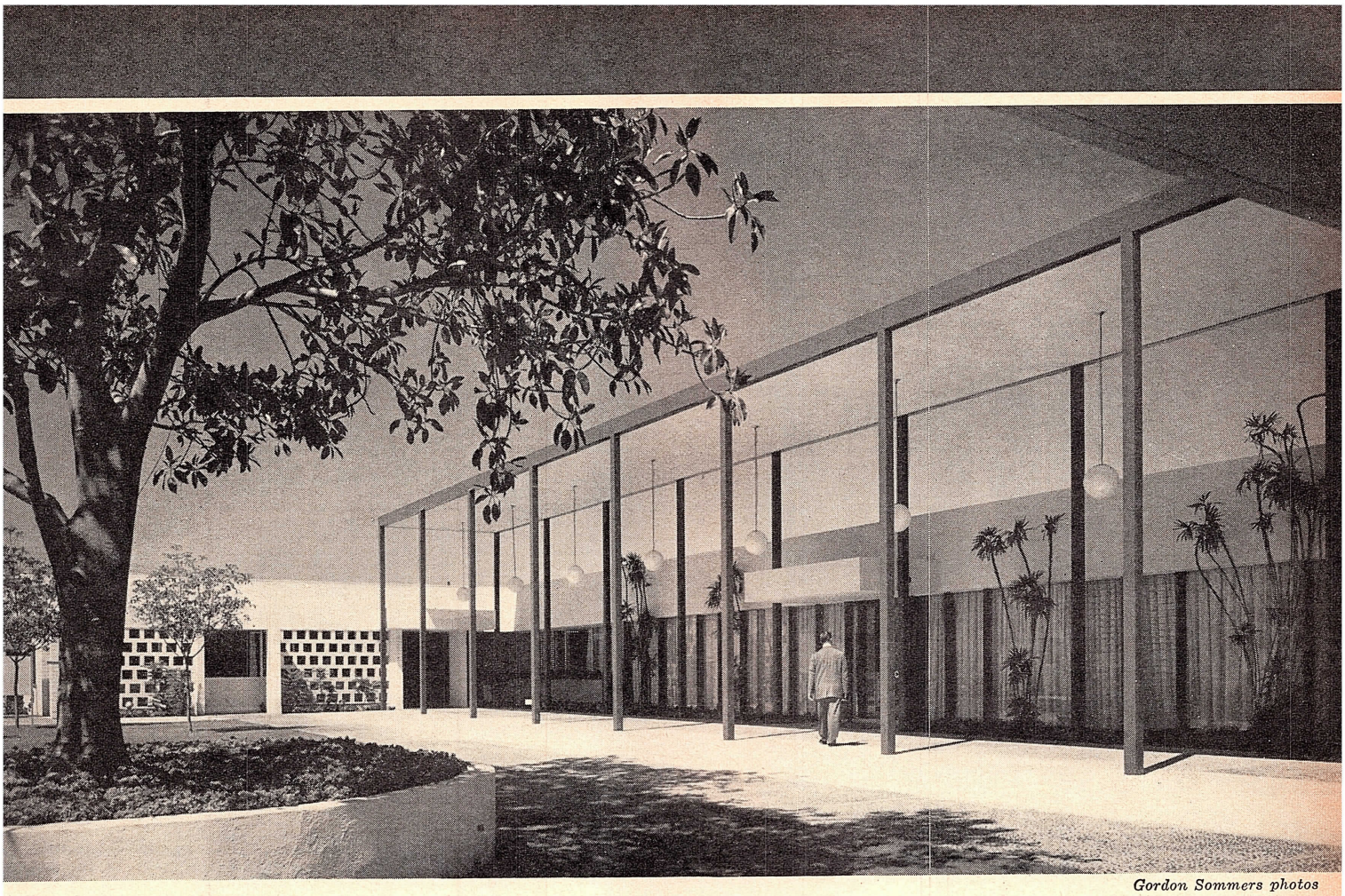


CIVIC CENTER LEADS DOWNTOWN RENEWAL

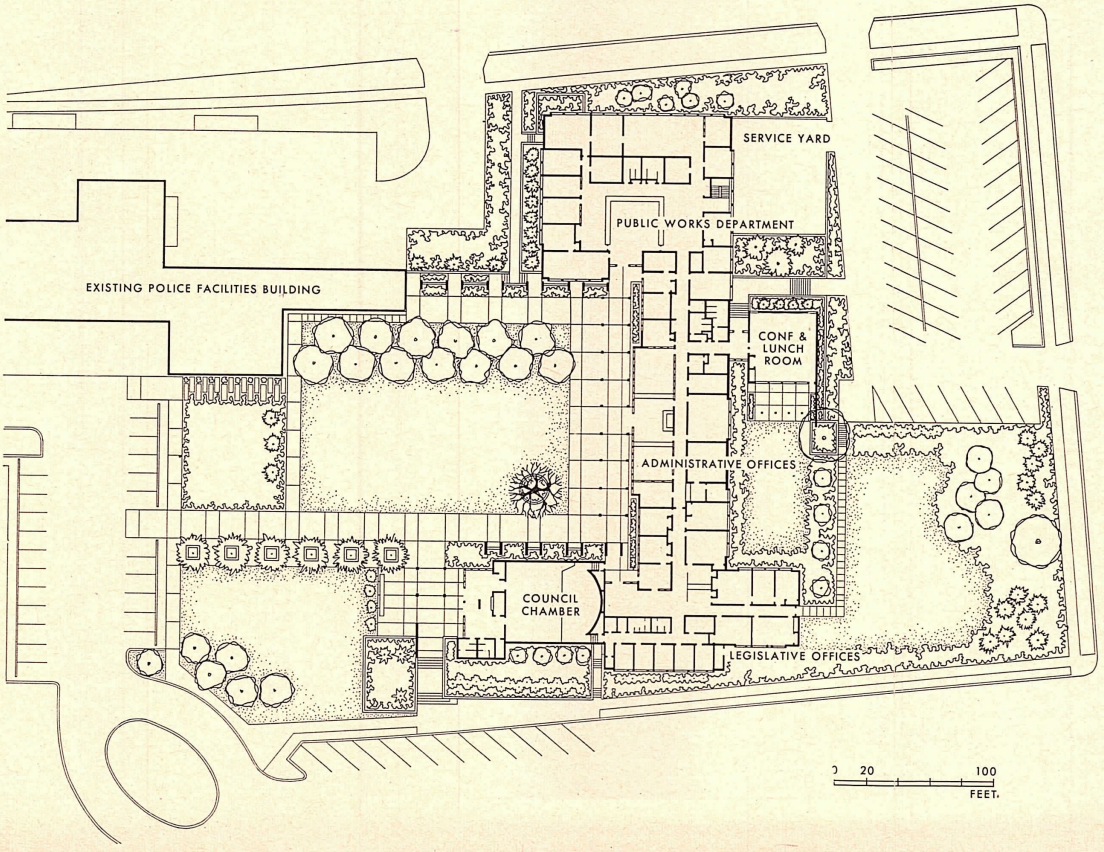
The new civic center at Redondo Beach, California, is the largest and most significant new project in the city's downtown core and represents the city's contribution to a revitalization program for the community. The center consists of two buildings: the city hall shown here, and a police facilities building, completed earlier. The large landscaped court serves as the connection between these two arms of government but, more importantly, is the public access to all departments except the council chamber which is entered from the loggia at the top of the steps from the street to the court. A smaller court on the opposite side of the city hall adjoins the conference room and the employees lunch room and is accessible from all departments. A high colonnade along the public side of the city hall provides a sheltered walk between departments. Direct staff communication is by an internal system of corridors. Simple materials are effectively and economically used: the structure is wood-framed, with exposed concrete block veneer.

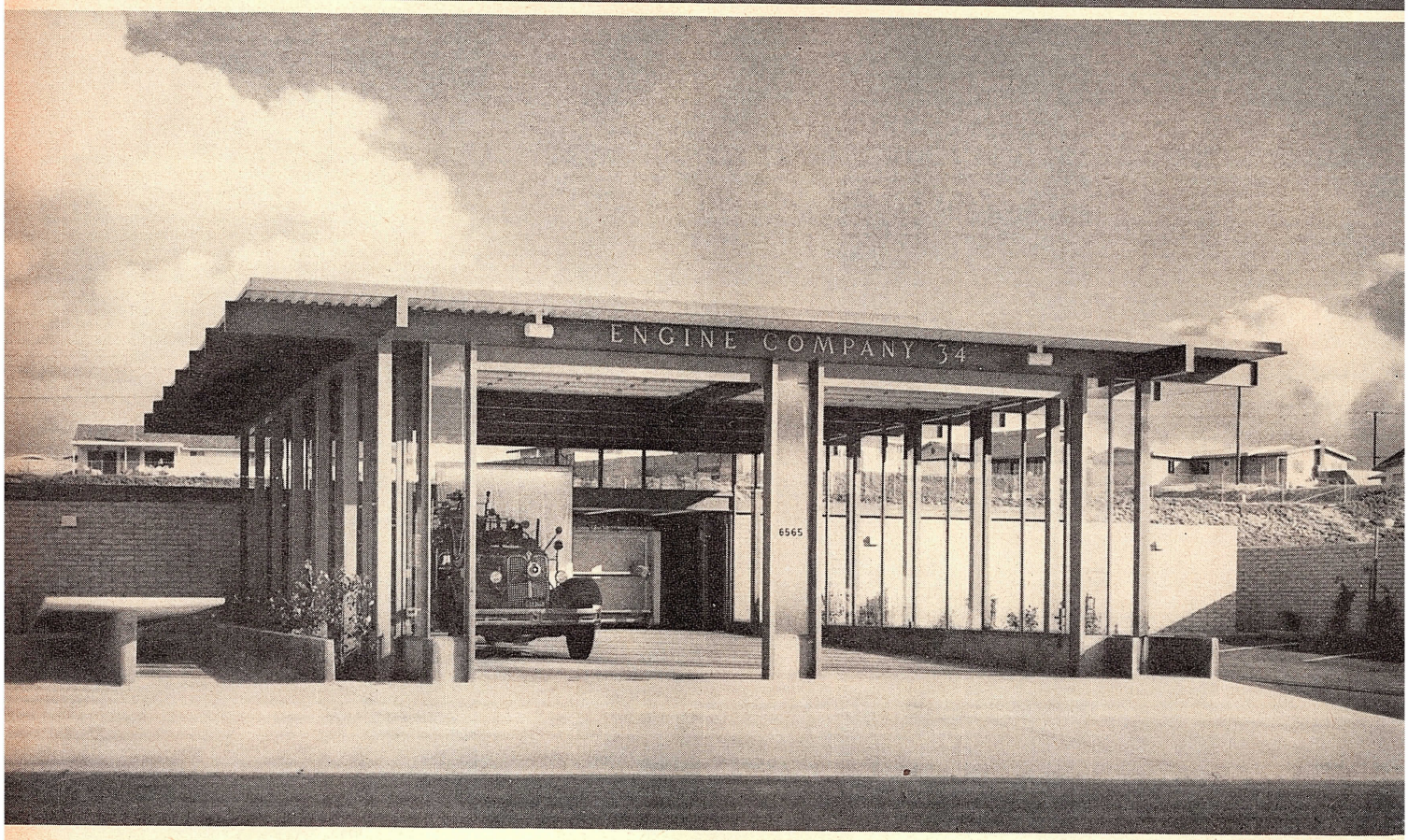


City Hall, City of Redondo Beach, California. Architects and engineers: Victor Gruen Associates, Ben Southland, partner in charge; mechanical and electrical engineers: Kocher, Bradford and Nishimura; landscape architects: Victor Gruen Associates, William T. Dreiss, associate in charge; contractors: Samuelson Brothers



Gordon Sommers photos

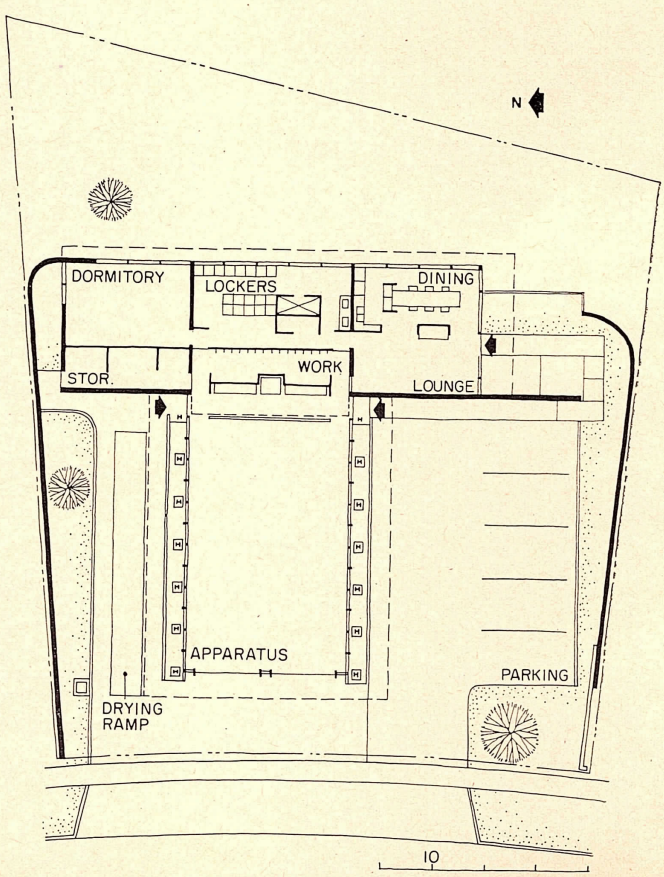




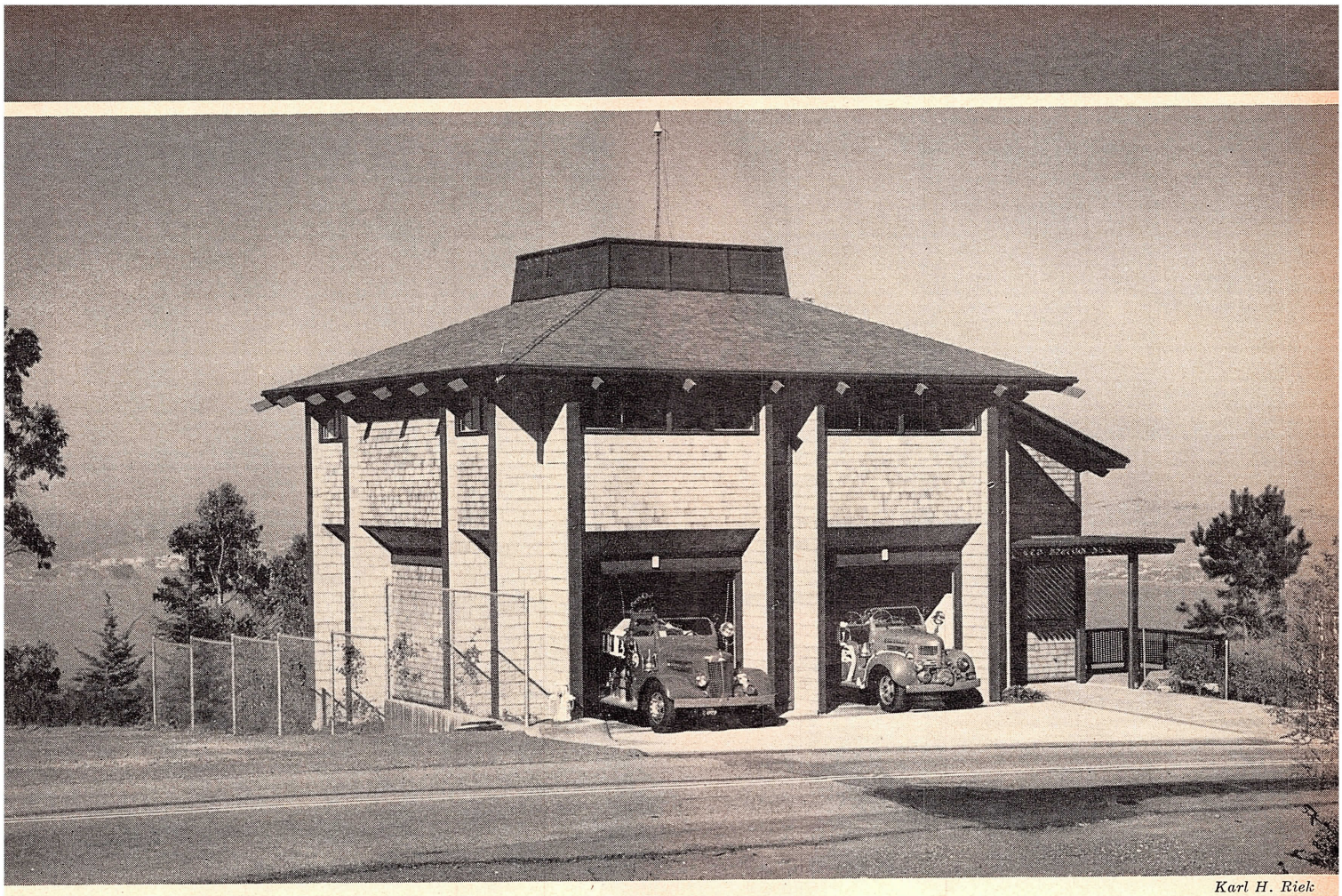
George Lyon

A FIRE STATION IN A GLASS PAVILION

Apparatus room and living area have complete separation in this unusual and delightful fire station, designed as a showcase for the equipment and a symbol of protection to the neighborhood. A steel-framed, glass-enclosed pavilion houses the fire-fighting equipment and is placed at the front of the site for immediate access to the street. In contrast, the living quarters at the rear of the station are designed to provide privacy and a distinctly residential environment. In addition to direct connection with the apparatus room from the interior, the living area has its own entrance through a landscaped patio, which both lounge and dining room overlook. Adobe-colored slump block walls screen the open areas at sides and back. Despite its unconventional design, the building came in within the original budget which was based on more usual types of fire house design. It won an award of excellence in the San Diego chapter, A.I.A., 1964 honors program.



Fire Station Number 34, San Carlos, City of San Diego, California. Architects: Robert E. Jones, architect and Hester-Jones and Associates; structural engineer, Harry F. Deardorff; mechanical engineers: McNorton & Brown; contractor: Raymond D. Haas

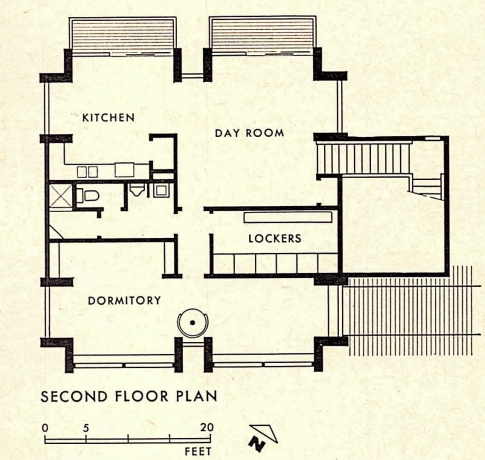


Karl H. Riek

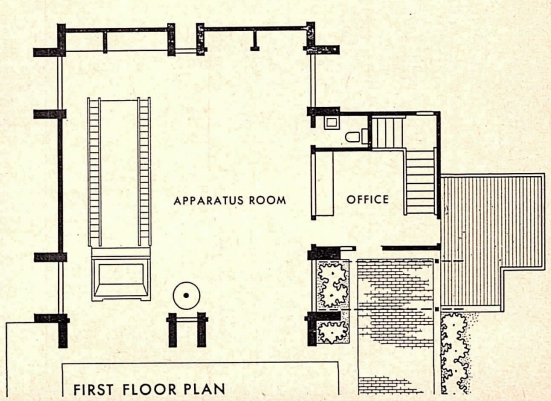
A FIRE STATION FOR A HILLSIDE NEIGHBORHOOD

A steep triangular site of restricted size (5600 square feet), and the residential character of the surrounding area suggested a two-story, domestic-scaled solution for this fire station in Sausalito, California, just north of the Golden Gate Bridge. A sharp decline on the north side of the site offered an opportunity for spectacular views toward San Francisco and the Bay. Advantage was taken of this by opening up the living quarters, to the views. In scale and in design, these quarters and the stairway leading up to them have a warm and homelike quality not usually found in such buildings as fire stations. A slide pole connects the dormitory directly with the apparatus room which is on the ground level with immediate access to the street. Eventually an ambulance shelter will be built in a portion of the present parking area. Materials—concrete block, cedar shingles, heart redwood—were selected and finished for minimum maintenance and for compatibility with the neighborhood.

Fire Station Number 2, City of Sausalito, California. Architects: Rockrise and Watson, Robert Mountjoy, project architect; landscape architects: Lawrence Halprin & Associates; structural engineers: Gilbert Forsberg, Diekmann & Schmidt; mechanical engineers: Yanow & Bauer; contractor: Robert S. Miller



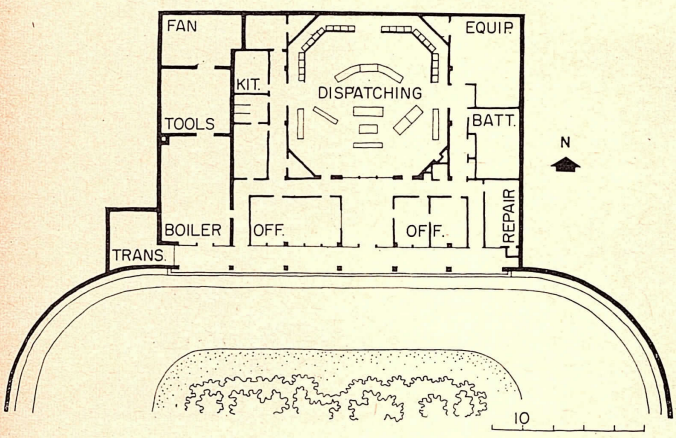
SECOND FLOOR PLAN

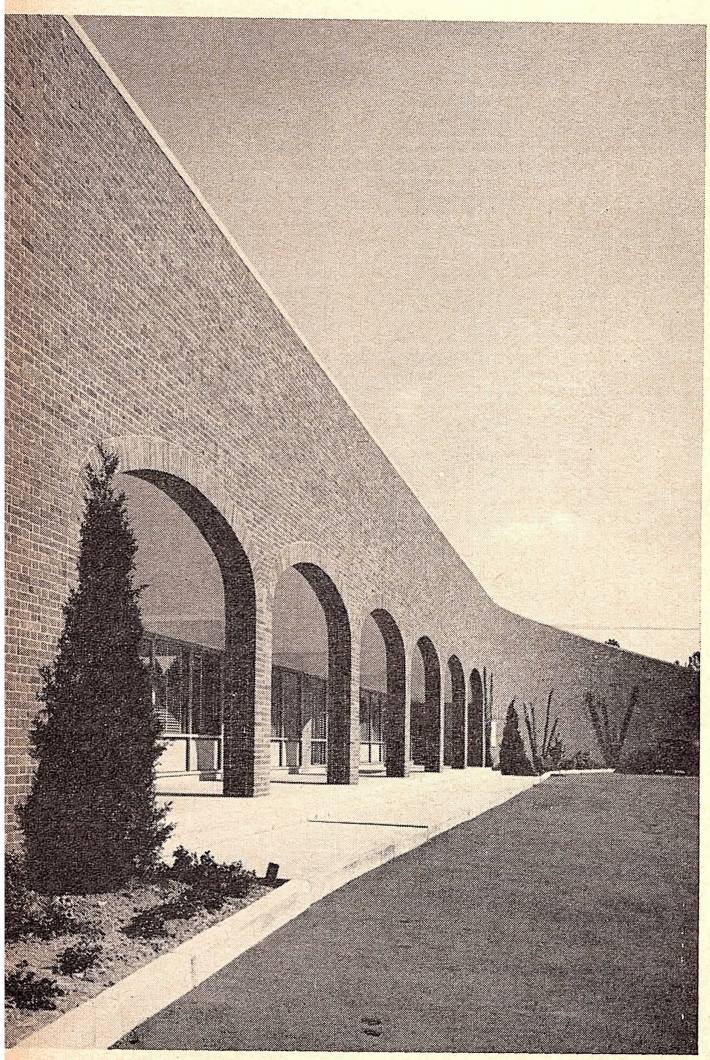


FIRST FLOOR PLAN



Mac Mizuki photos

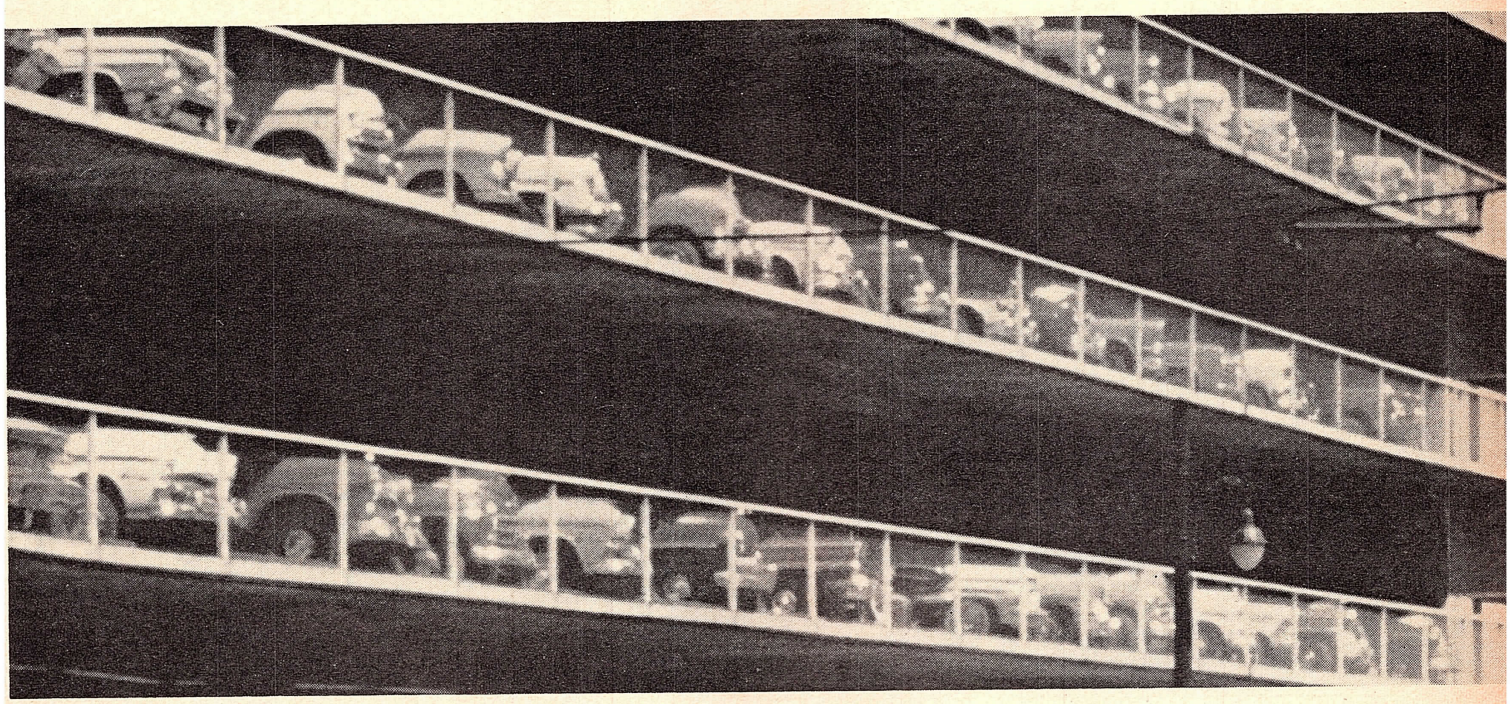




AN UNDERGROUND ALARM CENTER

To assure the security of its fire alarm headquarters under all conceivable conditions, the City of St. Louis decided on an underground structure and chose for its location a site on the edge of the city's principal park. The site permitted a completely underground dispatching room, where fire alarms are received and the proper stations notified. Entrances to the headquarters are, however, in full view, inset from an arcaded brick wall which curves at each end and acts as a retaining wall for the berms which cover the center. From the park side, nothing is visible of the structure except necessary (but discreetly encased) ventilators. The structure is of reinforced concrete; doors, sash and other details are of metal.

Fire Alarm Headquarters, City of St. Louis, Missouri. Architects: Hellmuth, Obata & Kassabaum; structural engineer: William C. E. Becker; mechanical engineer: John D. Falvey; contractor: Robert Paulus Construction Company



PLANNING A DOWNTOWN PARKING DECK

Growing pressure for more parking spaces on more expensive land, with more customer convenience, is revolutionizing the parking industry—and the standards for designing a parking facility

By Richard C. Rich, parking consultant

The result of the revolution in parking is a type of building nearly unknown just a few years ago—the self-service, multi-level parking deck.

This development—which has brought about a complete rewriting of both the design standards and operating procedures for downtown parking—grew out of two basic factors:

1. the spiralling costs of labor, which have made attendant-parking more and more expensive, and
2. the basic change in shopping habits to more frequent trips of shorter duration.

High Labor Costs Have Led to Self-Service

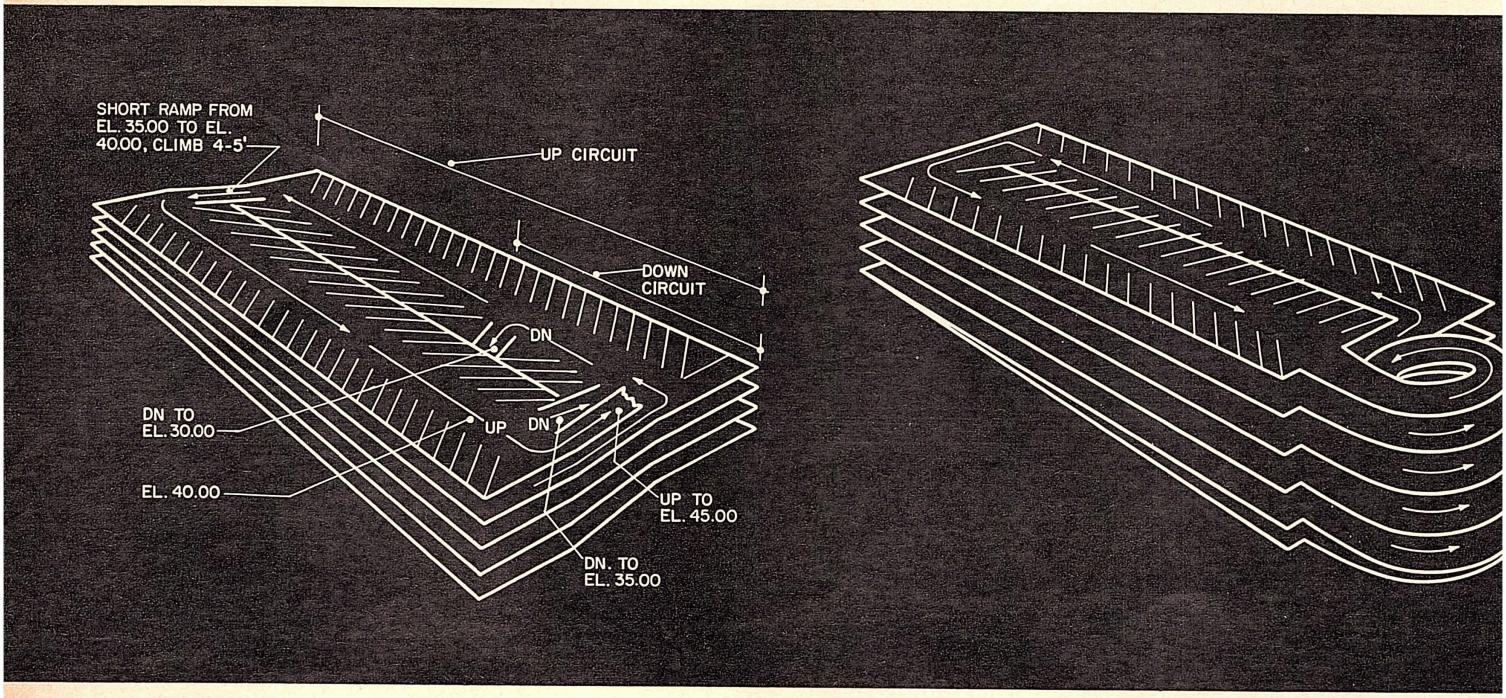
Attendant parking often involves so much labor (as well as other competitive disadvantages) that it becomes impossible to provide the customer with adequate service at an acceptable rate. Items:

In an attendant-parked garage, it is not unusual for an operator to spend 25 cents just to handle a car after the customer steps out. In a self-service facility, the customer serves as his own attendant, and works free. Further, customers—many of whom are sensitive to the treatment their car may receive after it is left with an attendant—are responsible for their own cars.

In attendant-parked garages, considerable time is spent moving a car from the entrance magazine to an available space, then later moving it back to the customer, who is waiting impatiently. Meanwhile, available spaces often cannot be filled rapidly because of traffic congestion within the building and because attendants are busy. In a self-service garage, the customers—providing their own fast service—can fill spaces as fast as they become available, achieving maximum revenue per square foot for the operator.

Attendant-parked garages average a turnover of about two and a half times available spaces per day. Four-time turnover is excellent but unusual. Many self-service facilities, on the other hand, average a turnover of three and a half times, and reach six on peak days.

The savings in manpower and increased utilization of space in a self-service facility can usually be returned to the customer with a completely different rate structure. For example, in attendant-parked garages, the charge for the first hour must be enough to cover labor costs to park the car, plus other fixed expenses. Rates for additional hours then reduce, often in a rather complex structure. In a self-service facility, no matter how many cars are run on a given day, the labor cost is usually a fixed minimum



This layout scheme, two modules in width, provides the desired one-way, no-choice traffic flow. Cars park on level floors, move up one-half of a floor height on ramps at each end of the building. The down-ramp system, confined to one end of the building, is, in effect, a circular express exit

Using sloped floors, this layout requires a climb of one floor each full turn of the floor system. Again the traffic pattern one way—the customer parks in the first available spot. He a circular down ramp, external to the deck, is used. It can placed anywhere around the perimeter

amount. This allows a fixed rate to be charged for each parking hour, which is easier for the customer to compute in his mind and is a much more attractive rate structure to the short-term parker.

Best Location: Close, Closer, Closest

Today's shopper, or theatergoer, or other transient parker wants to leave his car as close as possible to his destination. Ideally, a shopper would drive his car directly to the counter selling the item he wants. Widespread acceptance of the drive-in theater, bank, dry-cleaner, and restaurant has made it clear that, to be successful, a parking structure should be located, not a block from the traffic generator it serves, but adjacent to it, if not incorporated in the building itself. This generally means that the parking operator cannot begin by seeking out an inexpensive piece of land, but must develop prime property for maximum yield. Often, on expensive land, the first floor must be utilized for retail shops, restaurants, and other commercial facilities which can return a higher revenue. And very recently, it has become apparent that facilities can economically be built above the parking structure (one example is shown at the end of this article).

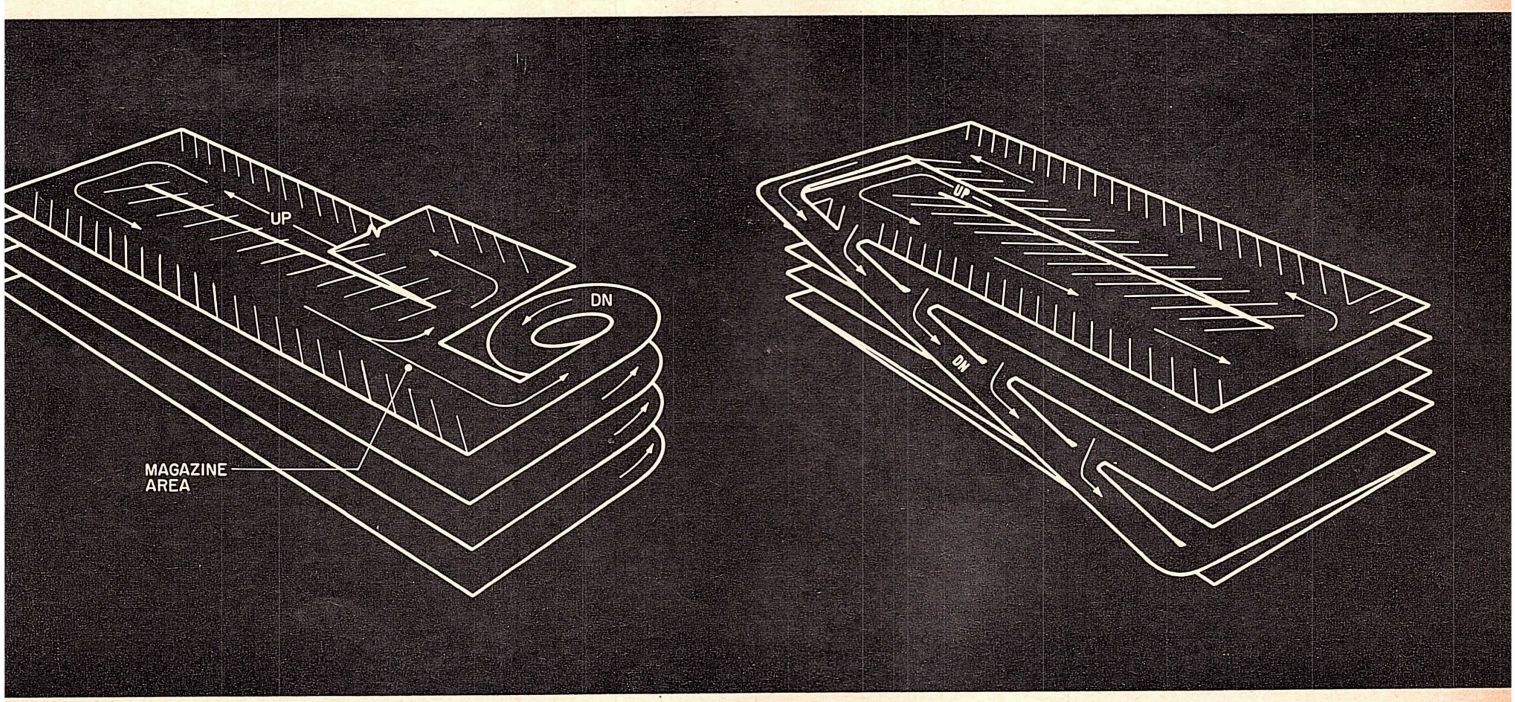
The Basic Economics

Parking demand falls into three main categories: the transient or short-term parker, the all-day user, and the monthly or contract occupant. In most areas of the country, because of existing rate structures, all-day or monthly parking cannot always be accommodated on the same piece of land as a transient deck.

Though the size of the lot affects averages greatly, for a transient parking facility you can generally justify a land cost equal to the building cost—for example, $1400 per car space in the building and $1400 per car space in the land. Good current practice calls for 330 to 360 square feet per car space, a figure based on 8½-foot stalls and including ramp and aisle space. If land costs go above about $1000 per car space, a combination building—with ground-floor commercial facilities—is generally called for.

Five Design Criteria Have Become Standard

For many years, potential investors hesitated to build parking decks because of frequent changes in design concepts and over-all thinking in automobile



Essentially similar to the layout at the left, this plan incorporates the circular down ramp into a completely rectangular scheme. This device provides some magazining for exiting cars at the end of each floor, so if there is some delay on the down ramp, upward travel is not blocked

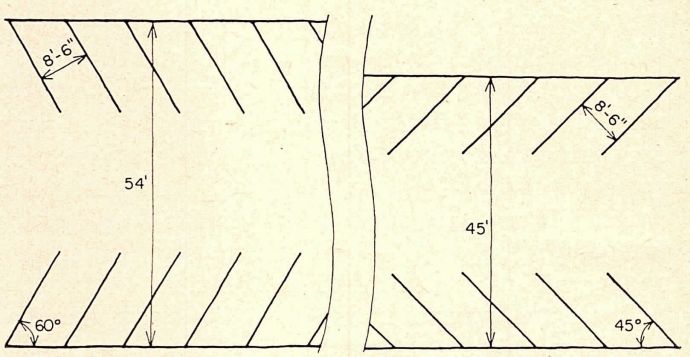
In this sloped-floor system, an external-straight-run ramp is used for express exiting. Cars have access to the ramp from each floor. In the case of a very long deck, the ramp could travel down on one side of the building; here it turns one corner and exits on the far side of the building

handling. But self-service design has now advanced to the point where a building should not become obsolete for at least the next ten years. The basic design ideas—which are incorporated in the basic layout schemes shown at the top of these and the following pages—are:

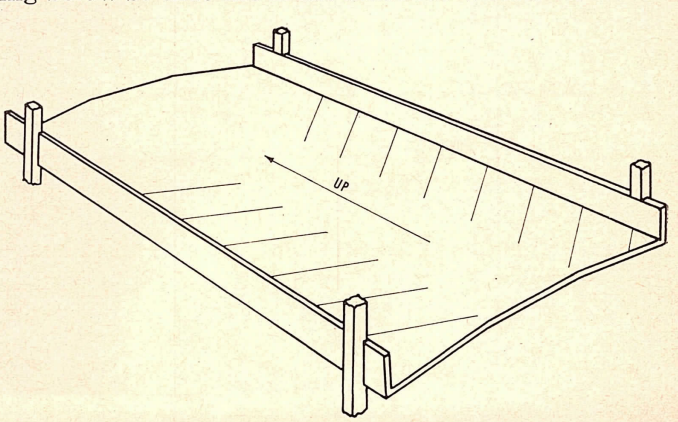
1. A parking deck should be built with clear span construction—that is, the decks should span 50 to 56 feet between columns at right angles to the direction of traffic flow.

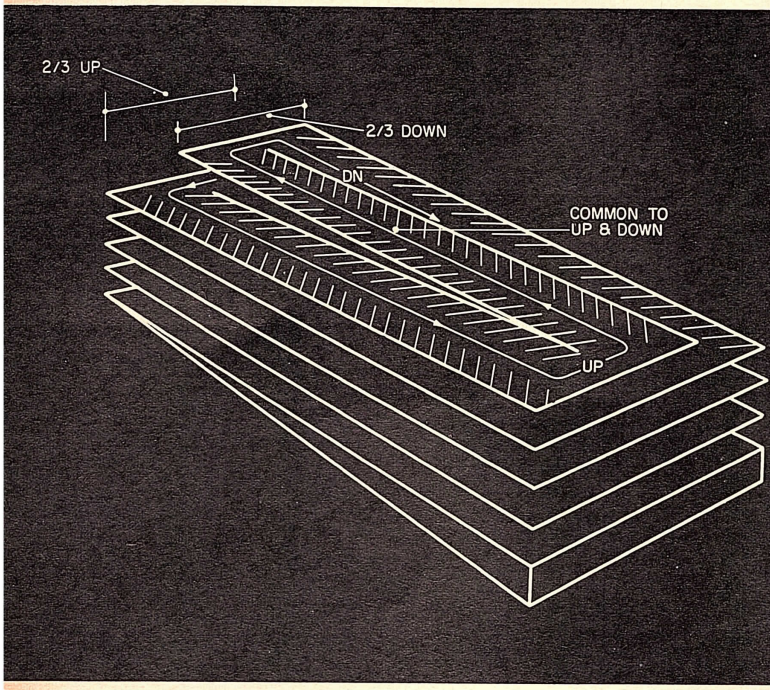
Though clear-span construction costs about 15 per cent more in most designs, it results in about an eight per cent gain in car spaces, so that on a cost-per-car-space basis, the net result is only a seven per cent increase in cost. And even this is offset by two factors: clear spans produce flexible units in which the size of stalls and parking angles can be changed if automobiles change drastically in dimensions. And no longer is the customer forced to squeeze next to a column decorated with 15 different colors of paint from previously parked cars.

2. Parking stalls should be laid out at an angle between 45 and 60 degrees. Most customers can park at this angle with one maneuver from the aisle, instead of the two or three maneuvers required for most right-angle layouts. The upper drawing shows typical dimensions. In many layout schemes, cars

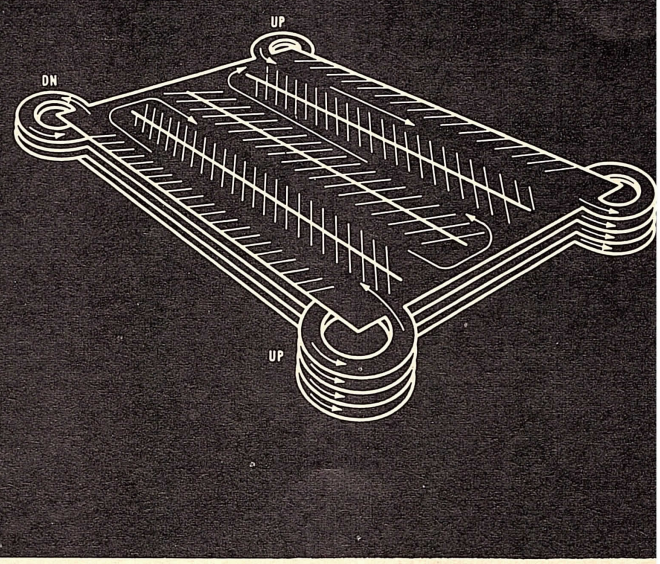


are parked on sloped floors, and in the sloped areas the floors are often crowned as shown in the drawing below so that the front and rear wheels on either





In this three-module system, spaces are provided on both the up and down ramps. The module at the left is sloped up one full floor in the length of the building, the module at the right is sloped down one full floor. The center module is level and common to both the up and down circuits



This type of deck, used for basically all-day parking, can carried to 3600 cars without overtaxing the ramp syste Each ramp core could contain two interwound up or dov ramps. At peak periods for entering and exiting, one of t ramps can be used in the opposite direction to normal flo

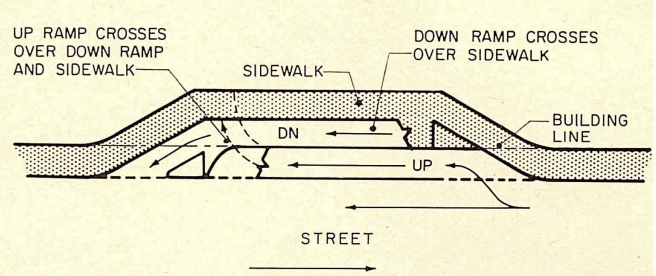
side of the car are level. Angle parking also sets up the next design standard:

3. Decks should be laid out with a clearly defined, one-way traffic flow. Under this system the customer need only be advised, upon entering, that there is space available. This can be done by an automatic counter. If he follows the defined traffic flow, he will find a parking space without having to choose among various aisles in which to drive.

There are limitations to this one-way system. Six full circuits are the maximum a driver can negotiate comfortably, and he should have to pass no more than 500 to 600 cars on one circuit to reach the last available space. Depending upon the size of the site, larger parking decks incorporating two completely independent circuits of one-way traffic flow can be designed. This doubles the amount of spaces and the vertical height of the building, yet need not exceed the limitations noted above.

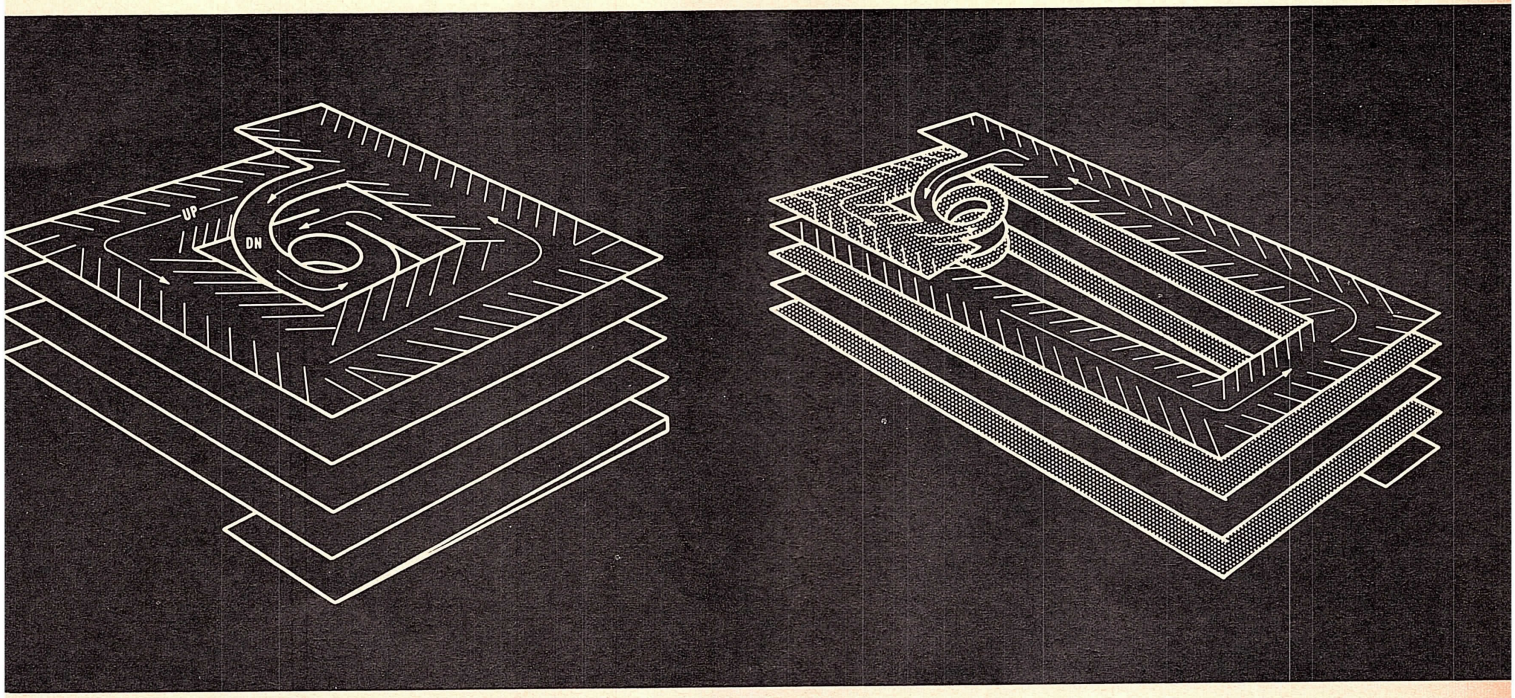
4. A parking deck should have some sort of express exit ramp. It is impractical to establish a route which forces the customer to pass 500 spaces on the way out. Express exits can be circular ramps, straight-run ramps, or a third module on a two module system (see drawing above, left).

A circular ramp should not have more than five turns. If a single exit ramp is to be used with a higher facility, rather than using more turns it would be advisable to increase the grade on the ramp, so it drops two floors per turn instead of one and provide two points of access to the turn. In planning the exits (as well as the entrance) it is vital to minimize delays caused by pedestrian traffic. The drawing below shows one good solution—the side-



walk is moved inside the building line, eliminating both delays and hazard to pedestrians. Further, the exit should be located as far as possible from the first traffic signal.

5. The elevators should be situated as close as possible to the customer's destination. Although it would seem advantageous to place elevators centrally in the building, they should be placed in the corner closest to the traffic generator. The reason: The



'or a basically square site, this system uses a completely loped floor system, rising one floor per complete revolution, or upward travel. Express downward travel is provided by circular ramp which can be entered at one corner of each oor. Like most, this is a one-way, no-choice layout

This variation of the scheme at left is in effect two sloped-floor garages, each rising two floors per complete revolution, with a single circular exit ramp. On this elongated site, the core is left open for light and air. This arrangement is efficient in terms of square feet per car space

customer is not as aware of the walking distance inside a parking deck as he is of the walking distance from the elevator to his destination. The number of elevators depends upon the number of car spaces in the building and the number of floors. In most cases, up to 250 car spaces can be served effectively by one elevator, up to 500 by two elevators, up to 1000 by three elevators or possibly four, depending on building height, the potential turnover, and expected rush-hour concentrations.

Where Does Choice of Layout Start?

A number of factors should strongly influence the design of the project. For example, the best choice of layout scheme depends, initially, on whether the facility is to be a monthly, all-day or transient deck.

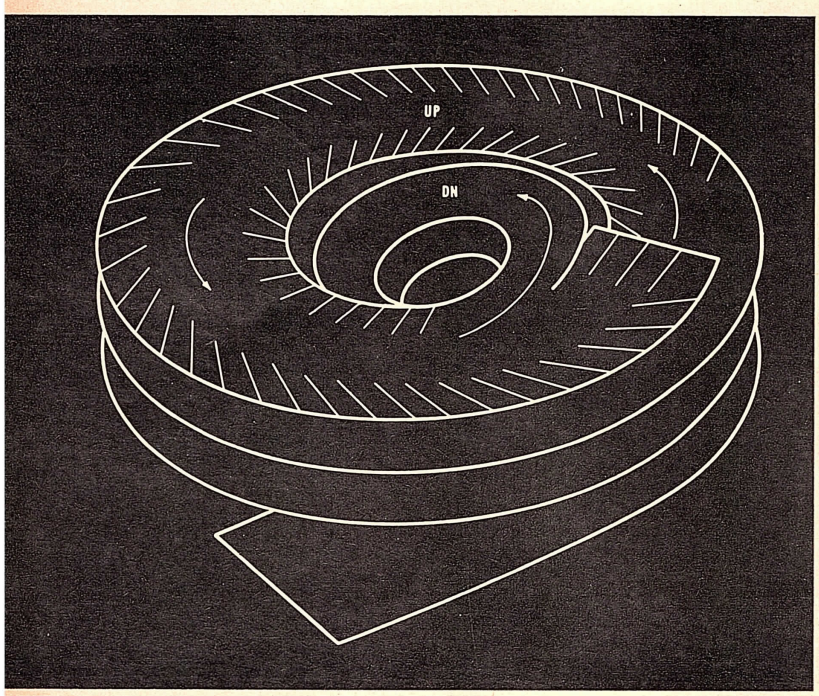
Under current design thinking, lot size—in relation to the required number of car spaces—is usually the major factor in choosing the best layout scheme. The area of a site may be large, but of a shape that makes an economical, efficient unit difficult to design. Lot elevations may also compound the problem of choosing the best layout. Looking at it from the other side, some layout schemes—while efficient—are limited to around 600 car spaces and cannot be combined vertically into larger units.

As a general rule, a lot as small as 140 by 175 feet can be effectively laid out for a self-service building with a capacity of 350 car spaces. Long, rectangular lots, say 110 feet wide by 250 feet long, can be developed for 500 or more car spaces. For parking decks with 1000-car capacity, the lot should normally be at least 250 feet by 200 feet, or 110 feet by 350 feet.

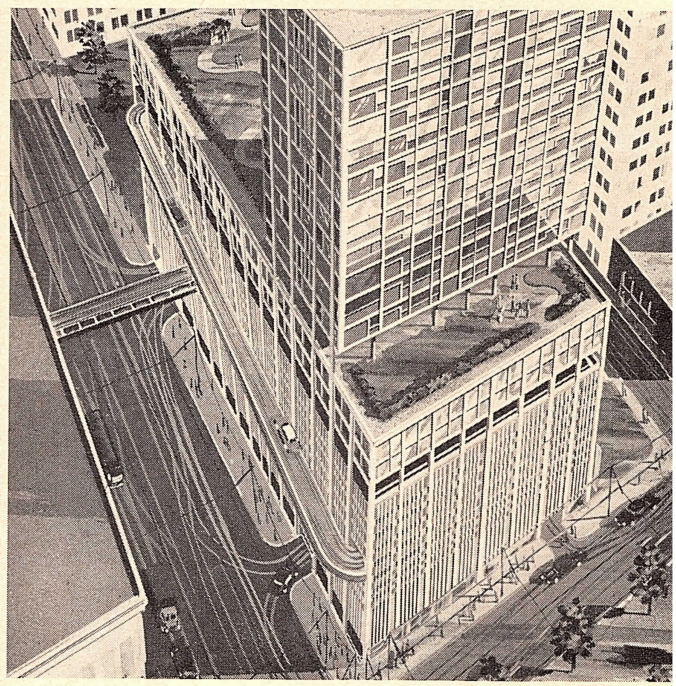
Simply covering space on an irregular site will usually produce an inefficient layout from the standpoint of space per car. It is often advisable not to build on an entire lot, but to concentrate on the most effective rectangular scheme, and use the remainder of the site for a more flexible type of building.

Street traffic patterns often favor one layout scheme over another—either because it conforms better with the existing street patterns or offers particular ease in setting up entrance and exit ramps. Existing street traffic may also determine a clockwise or counter-clockwise flow inside the garage—though it should be noted that customers seem to have a decided preference for a counter-clockwise flow or left-hand turns both inside the deck and on the exit ramps.

As mentioned earlier, in areas where the need for parking is greatest (as in downtown areas in major



This layout is still another version of the basic, continuously sloped floor system shown on the preceding page. Two circular ramps are interwound, the outer one for upward travel, the inner for express exiting. Crossover from upward to downward travel is possible once each revolution



This building has two levels of below-grade parking, nine levels of sloped-floor parking above ground-level retail space. The parking decks are served by a ramp that winds around the building, sometimes (at left) outside the building line. At top: two levels of office space, an apartment tower

cities), economics demand that real estate be designated for office, apartment, or retail use. This situation, which only compounds the parking problem, has prompted the development of methods of combining such facilities with parking. For example, a Pittsburgh development now underway (and shown in the rendering above) incorporates into one structure a long-span design for 700 transient spaces, basement parking for monthly customers, first-floor retail shops with access to the transient parking area, two complete floors of office space covering the entire development, and a 12-story apartment house section at one end of the building. The entire complex is connected to a major department store by means of a bridge. Yet despite the complexity of the design, none of the elements of good parking-deck design, such as express ramp systems, angle parking, and sloped floors, has been sacrificed.

On Construction and Costs

To date, most garages have been built of conventionally reinforced concrete or steel, though concrete is often preferred in the sloped-floor systems because of its adaptability to irregular or warped surfaces. Post-tensioning and precasting appear to offer the possibility of further economies and longer spans, and precasting can also speed erection.

The cost listing, below, was compiled by averaging the costs of 35 parking structures, each of reinforced concrete construction with sloped floors, express exits, 50- to 56-foot spans, and capacities ranging from 350 to 1800 car spaces. The listing shows the percentage of the total building dollar spent for each of the items:

General conditions	5.5
Excavation, grading, site work	5.0
Concrete	20.0
Reinforcing steel	19.0
Formwork	23.0
Electrical	4.4
Mechanical	4.1
Elevators	8.3
Rails, tile, paint, other miscellaneous	10.7
	100.0

All of this is a long way from parking spaces on a cheap piece of empty lot. The problems of providing efficient and economical parking in downtown areas have become more complex—but they can be solved in ways that benefit the customer, the operator, and the downtown area alike.

EXPOSED STEEL STRAPS STABILIZE HILLSIDE HOUSE

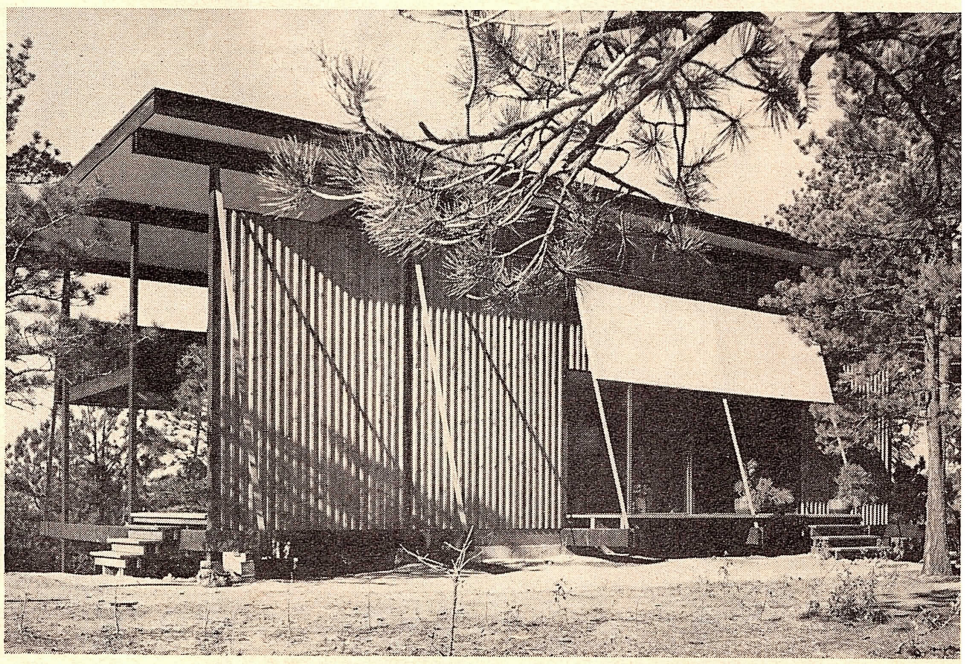
James Ream employs steel straps to give additional windbracing, and also to support large canvas sunshades

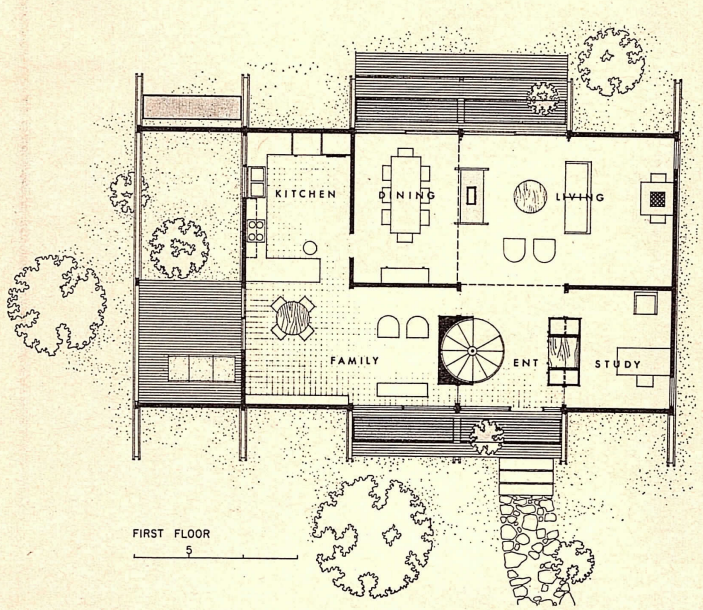
Rodger and Donna Ewy photos

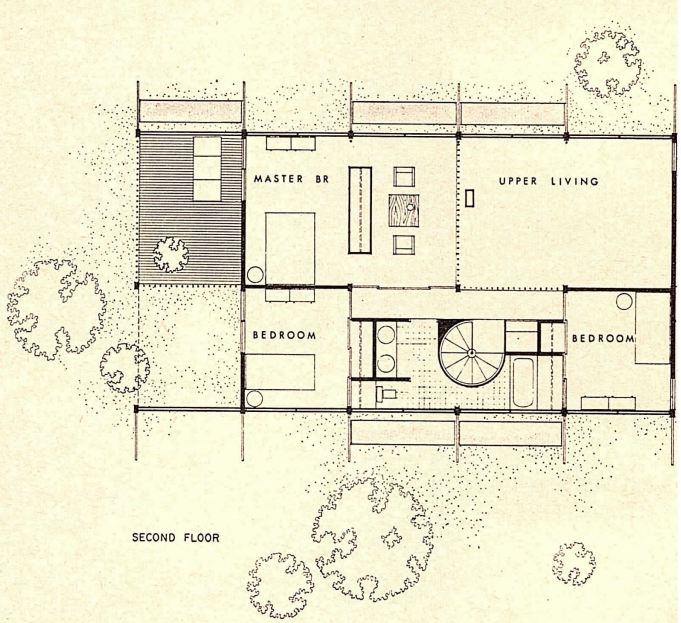


Set on a pine-covered hillside, overlooking the western ridge of the Rocky mountains, this house has been literally strapped down for stability. Describing this method of structural support, the architect said "Because of the high, exposed site and the openness of the plan—there is only one short partition which reaches the west wall of the building—it was decided that additional windbracing was required. The flat, steep, steel straps used are in tension and are individually adjustable, enabling the house to be structurally 'tuned.' " These exterior straps have another important function—that of providing support for a series of 6 feet by 10 feet canvas panels which protect the large glass areas from the fierce rays of the west afternoon sun. The shades slide up and down the steel straps, with the aid of lead filled pipe counterweights inside the house. Operation of the shades is by simple raising and lowering of the weights. When the panels are lowered in front of the glass areas, the sun turns the inner surface

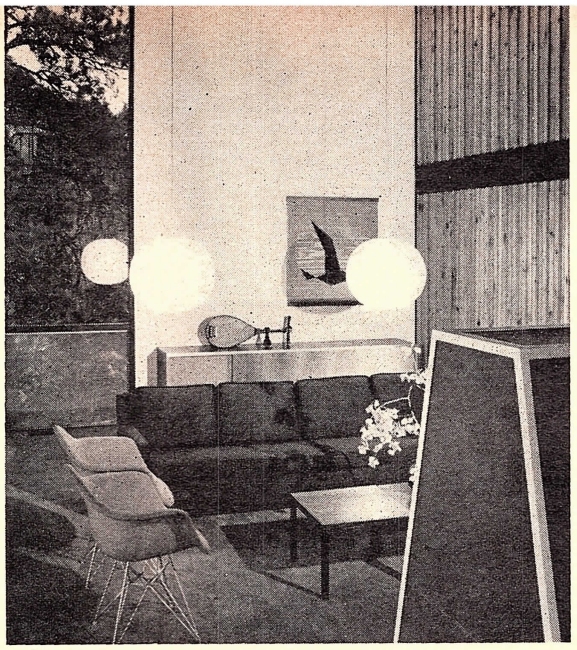


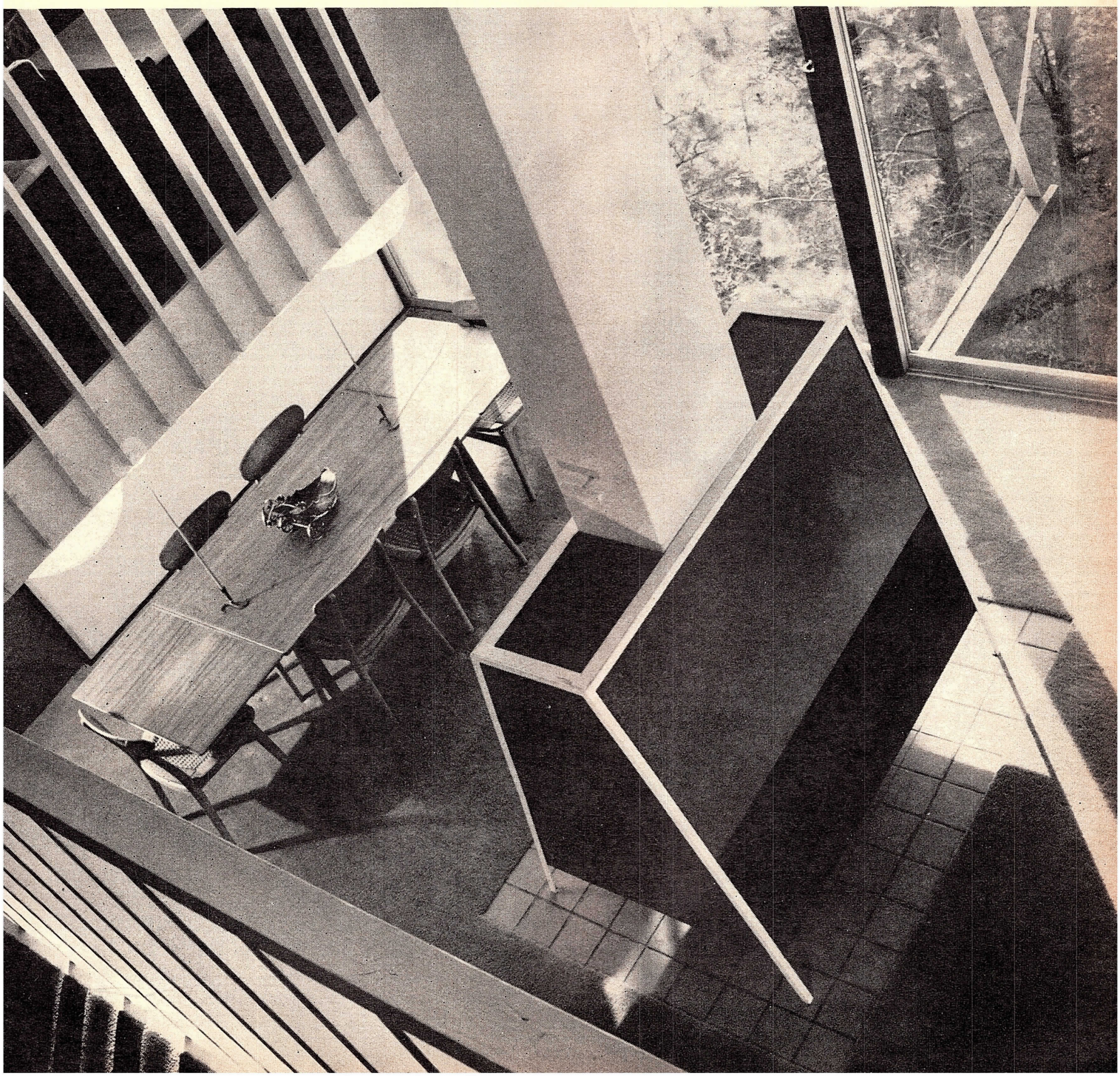




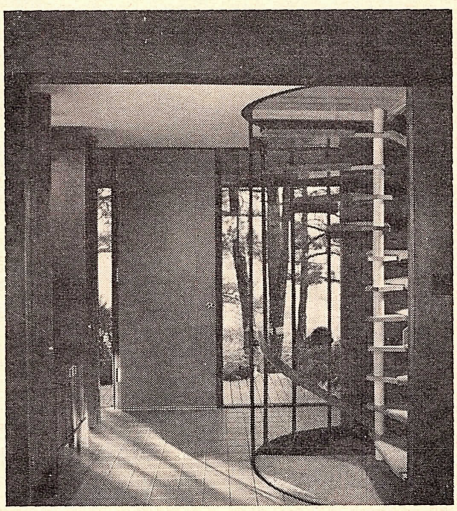


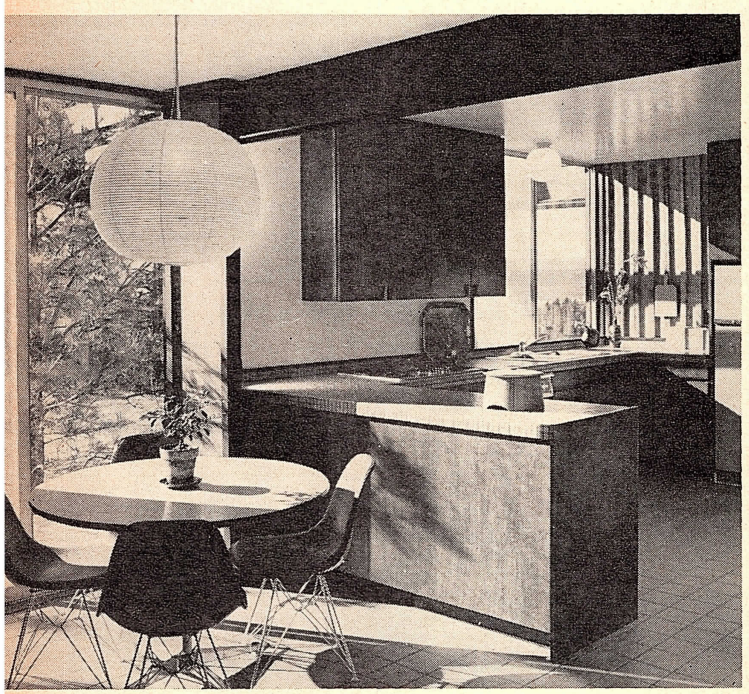
of the canvas orange, fills the interior with orange light. The house is built on three levels to take advantage of a natural bowl depression in the land. The lowest level, at grade in the "bowl", provides a children's entrance through sliding glass doors into a playroom. The main entrance level contains a two story living room, which is separated from the dining area by a free standing fireplace. The master bedroom, on the second floor, is divided by an island closet into a sleeping and sitting area.

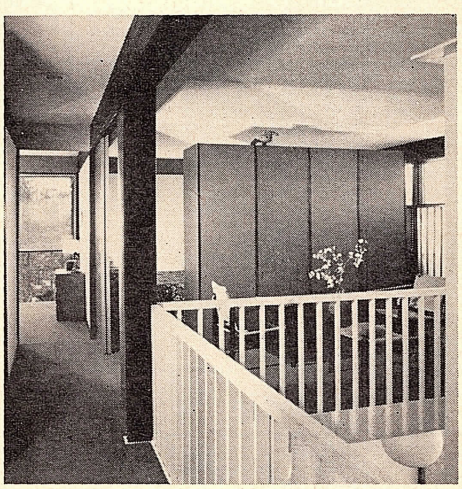


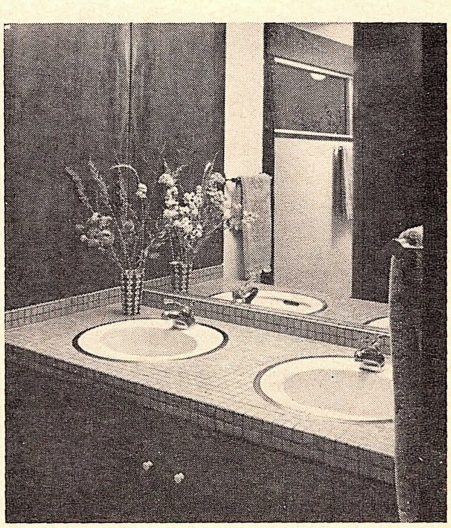


The structure of the house is notched post and beam with posts on a strict 10 foot module. Extended floor beams provide anchorage for the steel straps and also carry raised redwood decks. The final 10 foot bay of the house on the south side is open for outdoor living space. Exterior materials are rough-sawn board and batten cedar siding and large crystal glass panels which can be opened on all sides of the house to provide cross ventilation. The roof is built-up composition with insulating gravel aggregate. The cost of the house was approximately $26,000









Residence for Mr. Jerry R. Ditto
Castle Rock, Colorado
ARCHITECT: *James Terrill Ream*
STRUCTURAL ENGINEERS: *Ketchum, Konkel, Ryan and Fleming*
MECHANICAL ENGINEER: *Francis Stark*
CONTRACTOR: *George G. Shaw*

STORES

The elements of change in location and design

Two positive influences seem to be at work for architects in recent commissions for the design of stores and shopping centers. First, as the exhibits which follow hopefully may demonstrate, is an apparent maturing of the clients' acceptance of honest architectural solutions to the basic requirement—pleasing and attracting people. Second is the influence of the total economy, which is acting to restrict available sites and generate pressures for multi-level parking and shopping in metropolitan areas.

While the attractive store is not a new phenomenon (and certainly a few moments of harmony do not mean perpetual freedom from visual noise), there appears to be a consistent deftness in the handling of space and decoration that must reflect growing rapport between merchants and architects. Optimists may hope that, in this world of merciless economics, one generating force for this rapprochement is the customers' rejection of garish, tasteless and shoddy alternatives. A less disputed force, of course, is the mounting complexity of the store design problem. A measure of that complexity and a tool for coping with it are provided in the programing check list offered by Daniel Schwartzman on the following pages.

In no other building type does the competitive need for popular appeal confront more realistically the absolute and documented limits of the budget; documented, that is, by carefully assembled indexes of required income per square foot and records of effective merchandising techniques.

But merchandising itself undergoes evolutionary changes, partly in response to public reaction as reflected in those very records. Insistent neon, that may have summoned customers in earlier times, is lost in the garish welter of its own undisciplined progeny. The massed display of merchandise, once an alluring monument to plenty at discount prices, has perished at the costly hands of the destructive hordes it so successfully evoked. The barren tastelessness of unadorned low price repels the careful shopper whose meager funds are of importance to him. Synthetic skills in the creation of bewildering synthetic qualities have induced ever higher values to be placed on the image and fact of the merchant's integrity.

To these internal factors of the store itself must be added the external pressures of the region served by the store. The emergence of the so-called regional shopping center has been a postwar trend, especially active since 1960. Although more than 200 such centers have been added to a national inventory of some 8,000 smaller shopping centers, there is already evidence of limiting counter-pressures.

As the automobile multiplies, it contaminates and chokes its own environment. The distances it is supposed to shorten become irksome and hazardous exposures to frustration. The family car becomes a cumbersome and costly truck when drafted into an essentially pedestrian and urban preoccupation: shopping. As often as not, a shopping trip is a part of other, non-motorized activities which may involve banks, theaters, restaurants, or other facilities, which are primarily the attributes of cities.

Man, too, has multiplied. He has gobbled up the land and pushed the price of remaining tracts in many regions beyond the limits of reasonable return for low-rise retail establishments. The shopping center of the future will be vertical, said Lawrence J. Israel in a recent talk. Already the prototype, metropolitan store with multi-level, in-house parking is proving itself, as in Victor Gruen's store for Dayton's in St. Paul (ARCHITECTURAL RECORD, June, 1964). Mr. Israel envisions the logical extension to the multi-tenant, vertical, urban shopping center. His firm, Copeland, Novak and Israel, is even now developing plans for a vertically expansible, three-level center for Brussels.

In town and country, then, the changing complexity of retailing is demanding more and more of the services and talents of architects.

CHECK LIST FOR DEPARTMENT STORE PROGRAMING

A step-by-step guide to orderly and complete attention to the thousands of decisions and details involved in store design

By Daniel Schwartzman

The critical decisions which must be made by the owner, architect and consultants throughout the course of planning a department store can be anticipated and scheduled in an orderly procedure on most projects.

Some of these decisions are initiated by the architect for the owner's approval. Others are initiated by the owner for the architect's understanding. Still others are professional decisions both initiated and resolved by the architect, but about which the owner should be fully informed.

The following check list of items for decision during the step-by-step procedure in the design of a department store has been developed over many years of use as an important guide to the orderly approach:

1. *Statement of philosophy.* The first and perhaps most important step is the statement of store operating philosophy, which includes (1) the store image held by the management; (2) the store image now generally held by the principal classifications of existing customers.

2. *Survey of image.* A survey of the store image now held by the principal classifications of potential customers who may now patronize only the competitors' stores.

3. *Survey of potential sales.* A survey of the needs, buying habits and incomes of the present and anticipated population.

4. *Central store concept.* Particular attention should be given to the concept of the central store as a regional branch store serving the downtown area; and the separation of the branch store functions from the central functions of executive, control, merchandising, buying, publicity, advertising, credit, accounting, adjustment, personnel, research, legal, receiving, marking, delivery, shuttling and construction and maintenance, telephone ordering facilities, etc.

5. *Space and sales allocation.* Preparation of space comparison and allocation charts showing (a) the proposed open selling area and adjacent stock and fitting room areas for each merchandise department; (b) the percentage ratio of gross department selling area to the total store area; (c) the proposed total annual sales volume of the store; (e) the proposed sales productivity of each merchandise department expressed in dollars per square foot of selling area.

6. *Space and sales comparison.* All of the above are to be listed for comparison with other existing stores of the same management and other available figures of other stores of similar type, as well as figures from other reporting agencies.

7. *Floor-by-floor allocation.* Preparation of a floor-by-floor listing of the projected areas for every selling and non-selling department.

8. *Block plans.* Preparation of block plans of each floor, showing proposed building construction as well as the proposed selling and stock and fitting room areas and non-selling department areas.

9. *Site relationship.* Relationship of the building form to the site, including the parking pattern and landscaping.

10. *Exterior design.* Preparation of elevation studies and renderings of the design of the exterior of the building, including entrances, show windows, signs, etc.

11. *Cost budget.* The budget estimates of costs must necessarily be general approximations at this stage of planning, and are given only to present a broad basis for reconsideration of the economic advisability of the entire project, and to receive approval for the carrying out of the plans into the design development phase.

12. *Confidential aspects.* The point may be made that statements of store operating philosophy and goals, and potential sales projections, etc., are matters for confidential top management decision. However, since the end purpose of all of this is the design of an efficient and attractive space for store operation, this can best be carried out when there is a background of full understanding of all of the above.

13. *Teamwork.* In the final analysis, it must be a teamwork venture with the architect acting as the coordinating agent for all information of the requirements, and finally designing the architectural solution.

The following should be considered as a convenient check list, not necessarily all-inclusive, which

is intended to clarify these decisions for all concerned with store design.

A. *Basic Project Requirements*

1. Location of site; survey of legal boundaries and topographical conditions
2. Subsoil conditions (borings); public utility locations and capabilities
3. Vehicular traffic survey
4. Pedestrian customers survey
5. Public transportation available to site
6. Deed restrictions
7. Zoning and building code regulations applicable
8. Public agencies in jurisdiction whose approval and permits are required
9. Utility company rules and requirements, and approvals required
10. All other public agency approvals required
11. Financing agency requirements
12. Insurance requirements
13. Time of completion requirements
14. Budget of proposed limitations of construction costs.
15. Income goals (projected gross annual sales)
16. Other potential income
17. Expense of operation limitations (cost of utilities and other projected maintenance costs)
18. Number of and functional categories of employees
19. Selling departments (see B below)
20. Categories of merchandise
21. Non-selling departments (see C below)
22. Building functions (see D below)
23. Parking facilities required for customers, employees and others
24. Servicing requirements
25. Designation of those authorized to act for the owner
26. Provision for snow removal
27. Provision for safety and security of building, merchandise and equipment (sprinkler system, lighting, fire detection, burglary protection)

Note. There are some aspects of the economic feasibility, such as staff and executive salary costs, expenses for financing, taxes and land costs which are considered as highly confidential by the owner and can be kept confidential, since they do not directly influence the design of the project.

There are others, such as the type and cost of operational employees on equipment maintenance, cost of air conditioning, heating, cleaning, etc. which can affect design decisions.

B. *Selling Departments*

Silks, velvets, synthetics
Woolens, cottons,
Patterns

Linens
Domestics
Towels
Blankets
Bed spreads and boudoir

Notions
Laces, trimmings
Drugs
Cosmetics
Stationery
Books

Umbrellas
Neckwear
Handkerchiefs
Handbags
Small leather goods
Costume and Better Jewelry
Ladies' hosiery

Gloves
Belts

Hat bar
Millinery
Casual shoes
Slipper bar
Women's shoes

Ladies' underwear
Corsets and brassières
Negligees

Misses' better suits
Misses' better coats
Women's better coats
Women's better suits
Furs
Economy coats and suits
Economy dresses
Misses' better dresses
Formal and bridal
Women's better dresses
Sports dresses

Maternity
Uniforms, aprons
Cotton dresses

Misses' sportswear
Women's sportswear
Better blouses
Economy sportswear
and blouses
Street floor sportswear

Junior sportswear
Junior coats and suits
Junior dresses

Teens' outerwear
Teens' accessories
Sub-teens outerwear

Girl scouts
Children's outerwear
Children's hosiery
Girls' and children's accessories

Children's shoes
Children's millinery
Infants' wear
Infants' furniture
Boys' clothing
Boys' furnishings
Boy scouts

Men's clothing
Men's casual wear
Men's furnishings and robes
Men's hats
Men's shoes

Cameras
Luggage
Sporting goods

Furniture
Bedding

Oriental rugs
Domestic carpets
Summer rugs
Resilient flooring

Curtains and draperies
Upholstery yard goods
Blinds and awnings

Art needlework

Silverware
China and glass
Giftware
Pictures and mirrors
Lamps

Housewares
Small appliances
Paints and wallpaper

Major appliances
Radios and phonographs
Television sets
Records and sheet music
Pianos

Toys

Pet shop
Candy
Bakery
Groceries
Liquor shop
Beauty salon
Photo studio
Optical goods
Smoke shop
Gift wrap
Fur repair and storage
Garden shop
Shoe repair
Auto shop
Jewelry repair
Appliance repair
Miscellaneous repair

Soda bar
Restaurant

C. *Non-Selling Departments*

Truck dock
Receiving
Marking
Packing
Delivery
Display
Carpenter shop
Protection
Employment department
Personnel department
Training department
Employees' lockers
Employees' restrooms
Employees' restaurant
Employees' parcel check room
Hospital and first aid station
Telephone switchboard room
Telephone machine room
Telephone order room
Switchboard operators' restroom
Rubbish room
Incinerator
Bailing room
Managerial offices
Credit offices
Adjustment office
Cashier and vault
Mail room
Alteration room
Lay-away and will call
Paint shop
Cash register storage room
Fixture storage
Furniture storage
Supply storage
Gift box storage
Miscellaneous storage
Operating engineer's office
Sign and print shop

Order control room
Furniture staging area
Furniture repair
Parcel checking counter
Bridal consultant
Dressmaking instruction
Hobby instruction
Art needlework instruction
Cooking instruction
Auditorium
Information booths
Coat checking
Package assembly
Lost and found
Camp consultant
Taxi calling
Check cashing
Customers' toilet and lounge
Executive offices
Controller's office
Buying office
Advertising department
Promotion department
Special events department
Comparative shopping
Central receiving and marking
Central stock

D. *Utility Areas*

Boiler and air conditioning equipment rooms
Electrical switch gear and transformer vaults
Duct space
Moving stairway
Elevators
Stairs
Entrance vestibule
Telephone
Exterior walls

E. *Basic Design Decisions*

1. Size and shape of the building
2. Relationship of the building to boundaries and topography
3. Site layout and landscaping, including vehicle and pedestrian circulation parking and service
4. Height of building (floor-to-floor height)
5. Type of structural skeleton framing (concrete or steel, etc.)
6. Structural system for floor and roof, and exterior walls
7. Type of interior partitions
8. Column spacing
9. Finished floor to finished ceiling heights
10. Exterior wall materials and systems, including color, texture and maintenance properties
11. Roofing method
12. Window and entrance trim, glass hardware, etc.
13. Exterior lighting system
14. Signs on building, site entrances, etc.
15. Vertical transportation—stairs, freight and passenger elevators, dumbwaiters, conveyors and moving stairs, including exposed finishes i.e. elevator doors and cab, moving stair balustrades, etc.
16. Type, size, lighting and ventilation of show windows
17. Shape, size and finishes of columns
18. Interior wall finishes
19. Interior partition types and finishes, including doors and hardware
20. Type of finished ceiling material and systems
21. Type of finished floorings
22. Type of plumbing fixtures and accessories
23. Type of heating, ventilating and air-conditioning systems, including type and finishes of exposed components (grills, convectors, panels)
24. Type of electrical power and metering in accordance with utility company requirements
25. Type of general interior lighting and selection of lighting fixtures

AN ENCLOSED MALL WITH OPEN STORE FRONTS

Southland, Hayward, California

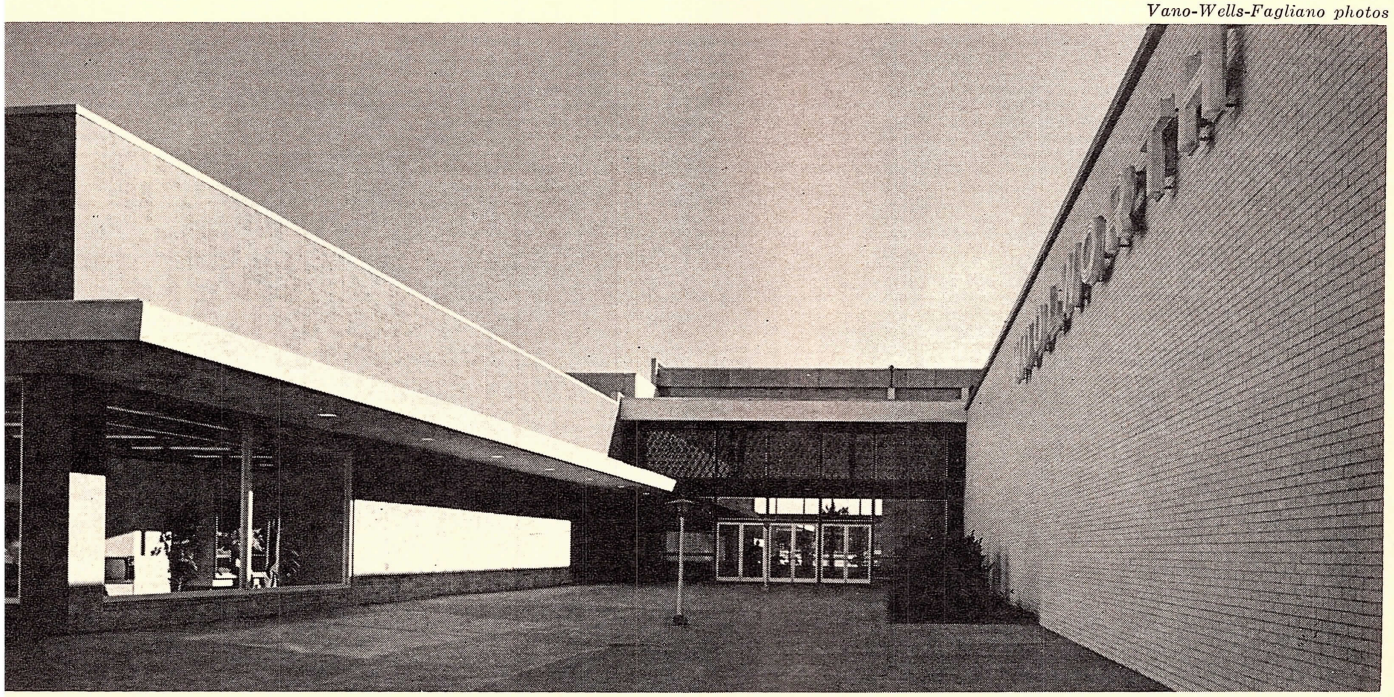
OWNERS:
Arthur Rubloff, A. Alfred Taubman, and Charles Allen Jr.

ARCHITECTS AND ENGINEERS:
John Graham and Company

GENERAL CONTRACTOR:
The Taubman Company, Inc.

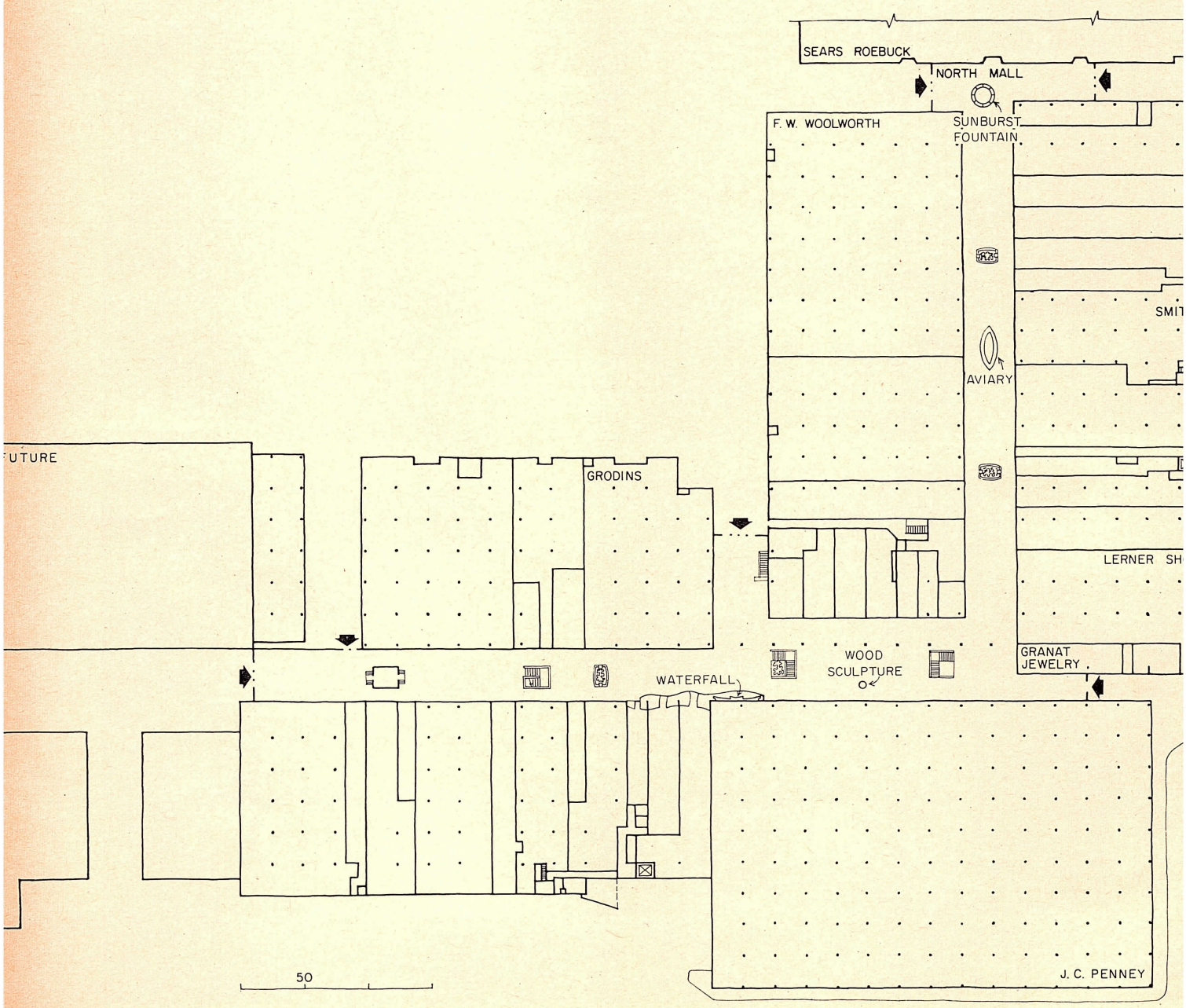
A fully enclosed, climate-controlled mall, primarily a shield against Bay Area winds, is the first of its kind to be programed for a regional-size shopping center in California. It is part of a $20 million expansion program which will eventually develop more than 100 stores in 1,200,000 square feet of continuous enclosure. Completion of this expansion is expected late in 1965. First phase of the expansion, shown here, was completed in the fall of 1964 and consists of a new J. C. Penney store of 165,000 square feet connected by 580 feet of enclosed mall to a previously completed (1958) Sears Roebuck store of 300,000 square feet. The mall makes a right turn at Penney's to continue for another 600 feet. Smaller stores of various sizes

Vano-Wells-Fagliano photos





front on the mall, most of them with open fronts making it possible for shoppers to walk from store to store without opening a door. The mall is 40 feet wide at its narrowest point widening to 60 feet along the entrance to Penney's. The mall ceiling is 25 feet high with 260 plastic panel skylights admitting natural daylight. Plantings, fountains, sculpture, a waterfall with bridged brook and a ceiling-high aviary (*below,* opposite page) provide decorative accents within the mall. Sunburst fountain sculpture in the north mall (page 191) is by Martin Matel. Tall wood sculpture (*top,* opposite page) is by Francois Stahly. The 12-acre site has parking facilities for 8,000 cars. It is located four miles from downtown Hayward and has access via Nimitz Freeway from Oakland and other populated centers.






GRODINS


Sears
Smiths
MENS WE

HIGH-FASHION STORE WITH SPLIT-LEVEL MASSING

Bullock's five-level San Fernando store is the largest structure in a specialized shopping center called Fashion Square in which smaller ancillary shops, also owned by Bullock's, handle fashion accessories and home furnishings. The large store itself is laid out in clearly defined enclaves and boutiques (see page 196) which have the aspect of intimate shops offering quality merchandise and full customer service in contrast to the open selling of discount houses. Massing of the reinforced concrete structures on a sloping site accommodates two-level access and parking and provides main entrances from both the second floor street level and first floor parking level. Exterior of the two main floors is faced with beige split-block resembling chiseled stone. An off-white fluted brick is used on the upper two levels, topped by a shadow recess of white, blue and green tile. A garden area on the south side of the building (*opposite, below*) provides three additional entrances to the second floor.

Bullock's Fashion Square
San Fernando Valley
Los Angeles, California

OWNER: *Bullock's-Magnin Company Division of Federated Department Stores, Inc.*

ARCHITECTS:
Welton Becket & Associates

STRUCTURAL ENGINEERS:
Brandow and Johnston

LANDSCAPE ARCHITECT:
Ruth Shellhorn

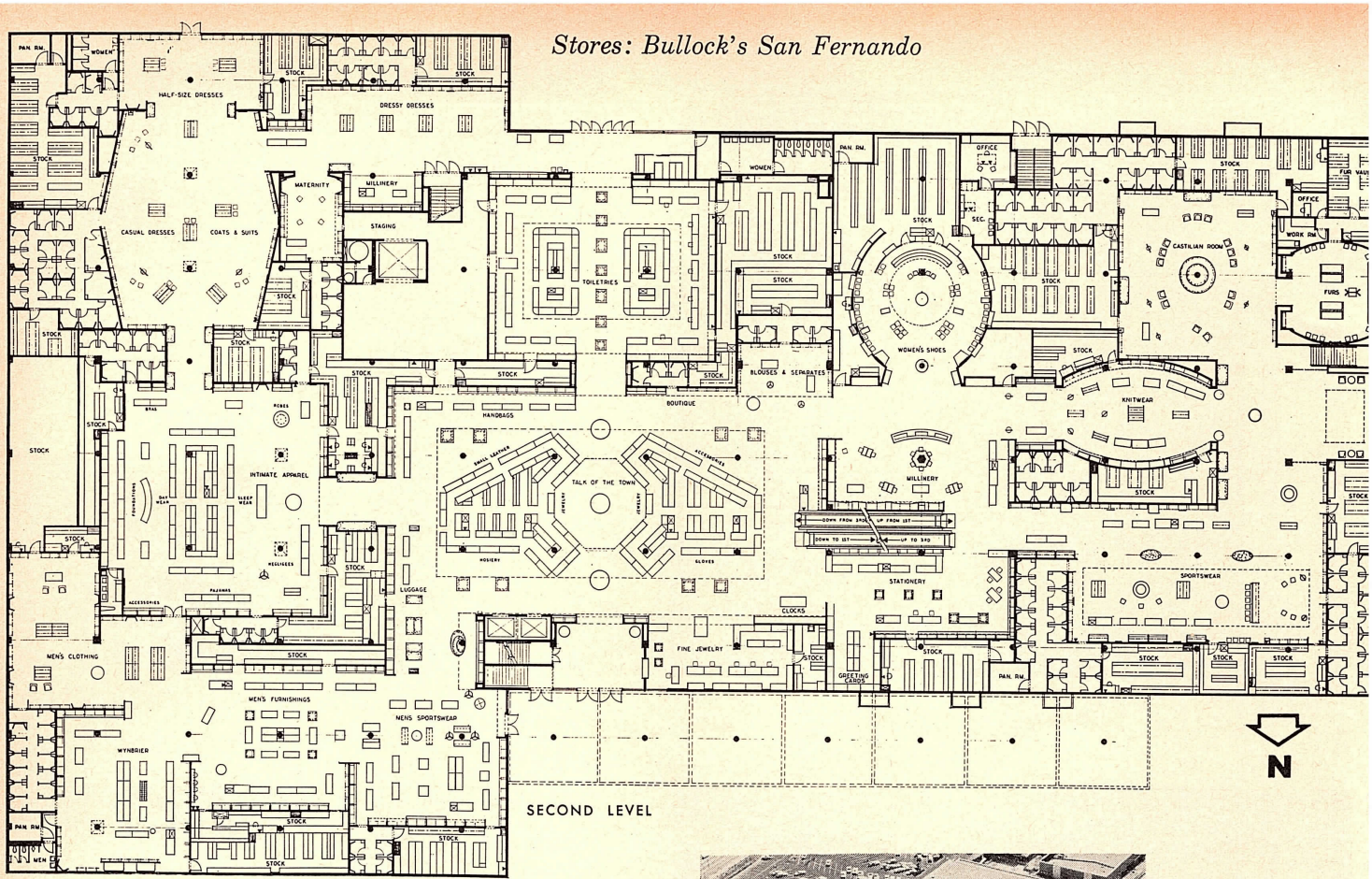
GENERAL CONTRACTOR:
C. L. Peck

Marvin Rand photos

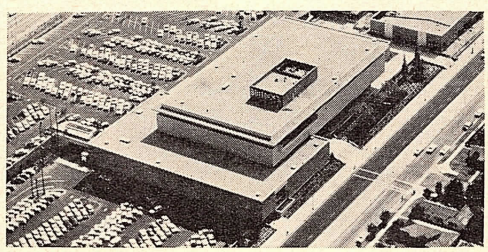


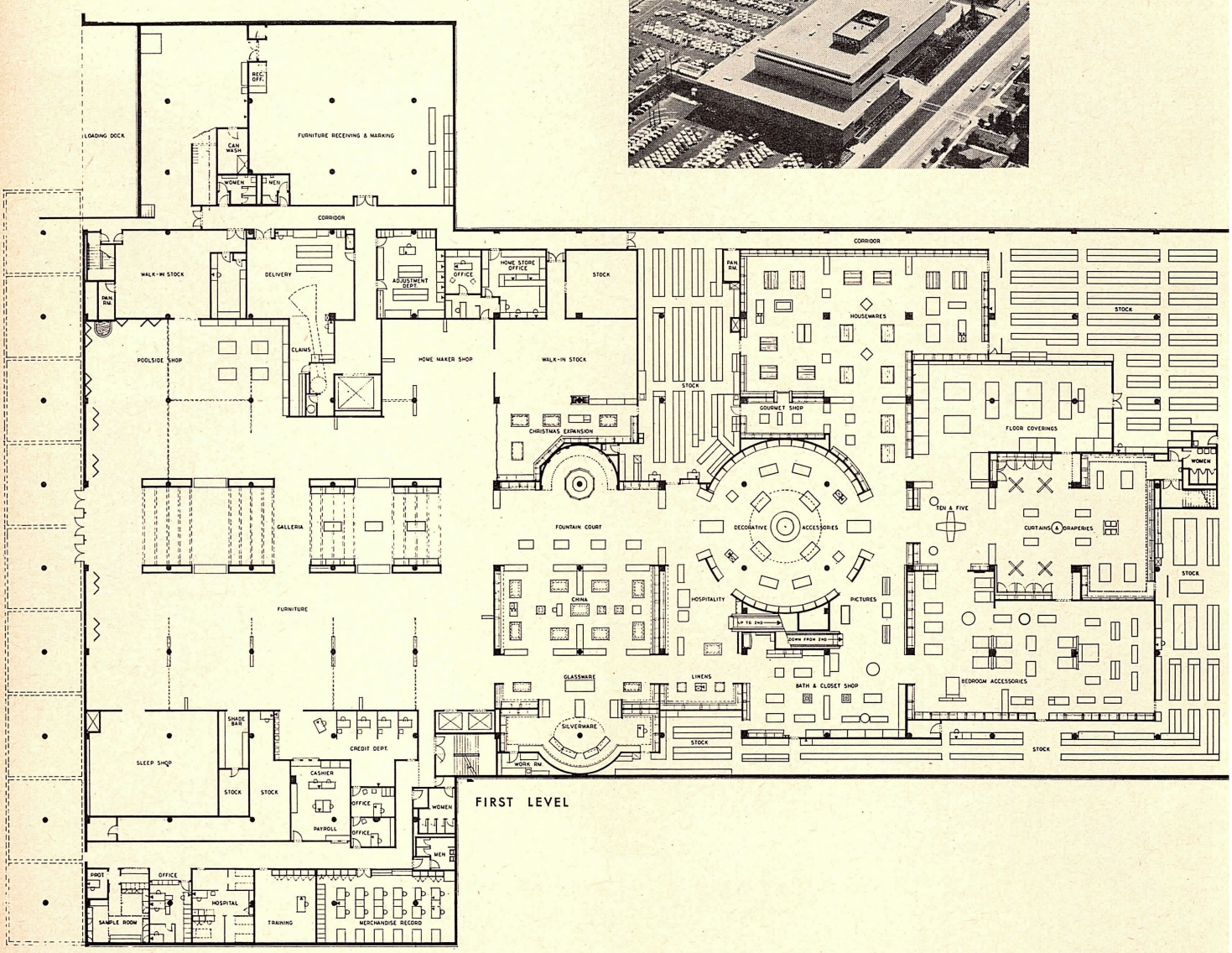




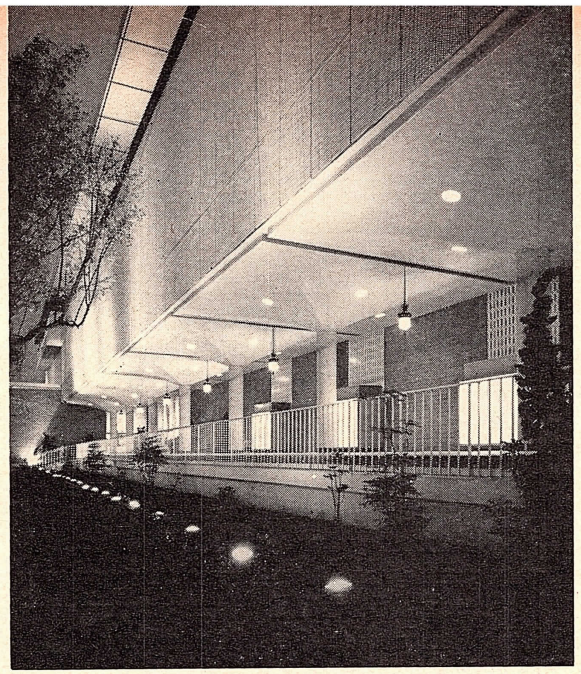


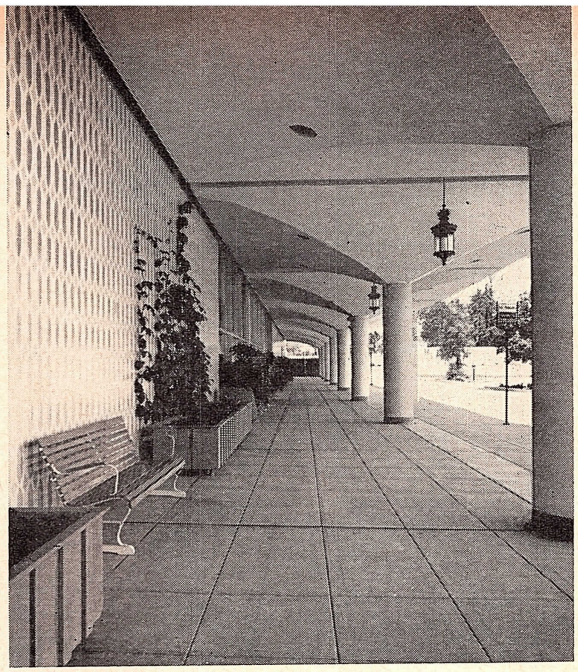
SECOND LEVEL



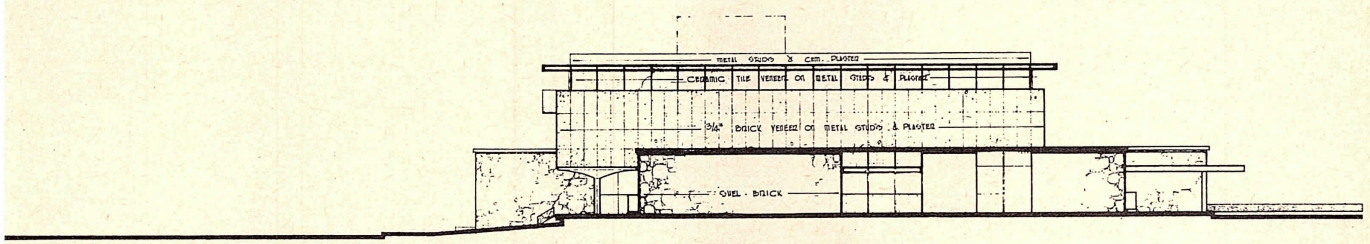


FIRST LEVEL

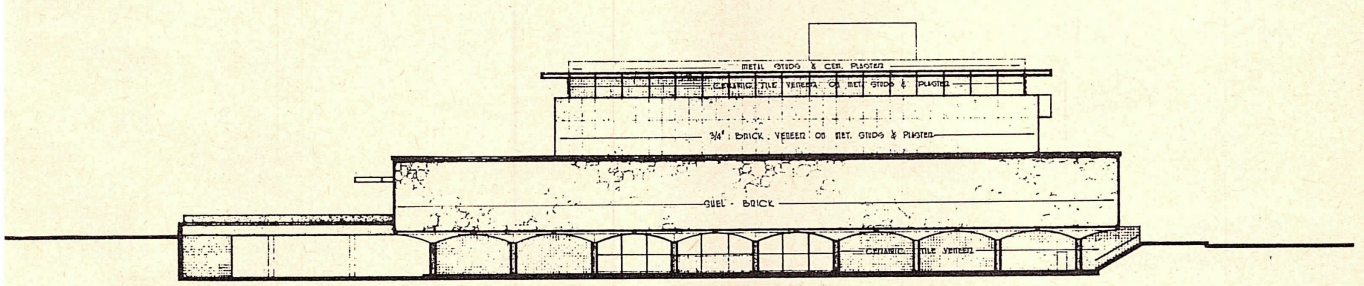




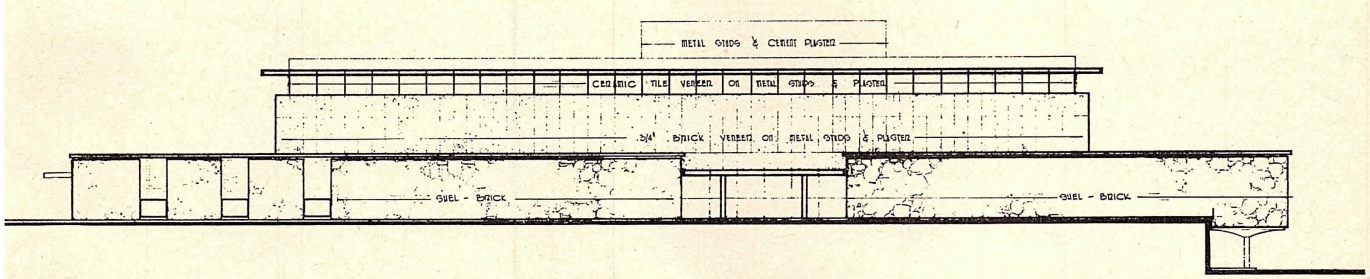
A nod to the Spanish heritage of the region is intended by vaulted porticoes on the north and east exposures (*above*) and is somewhat more definitely expressed by illuminating and decorating features of the interior. Patterned ceramic tile in white, blue and green is used as a facing in the lower level portico (*above, right*) and is repeated in a shadow recess around the top of the building. The two main levels are T-shaped in plan with two smaller rectangular floors above them. A fifth level is below grade.



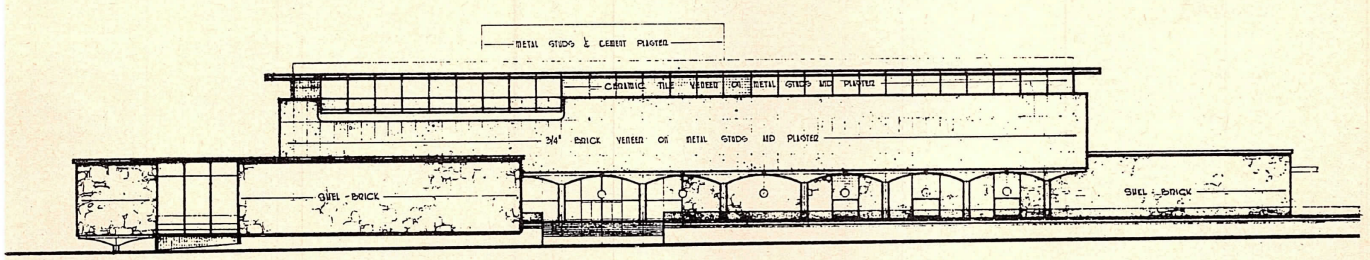
WEST



EAST



SOUTH



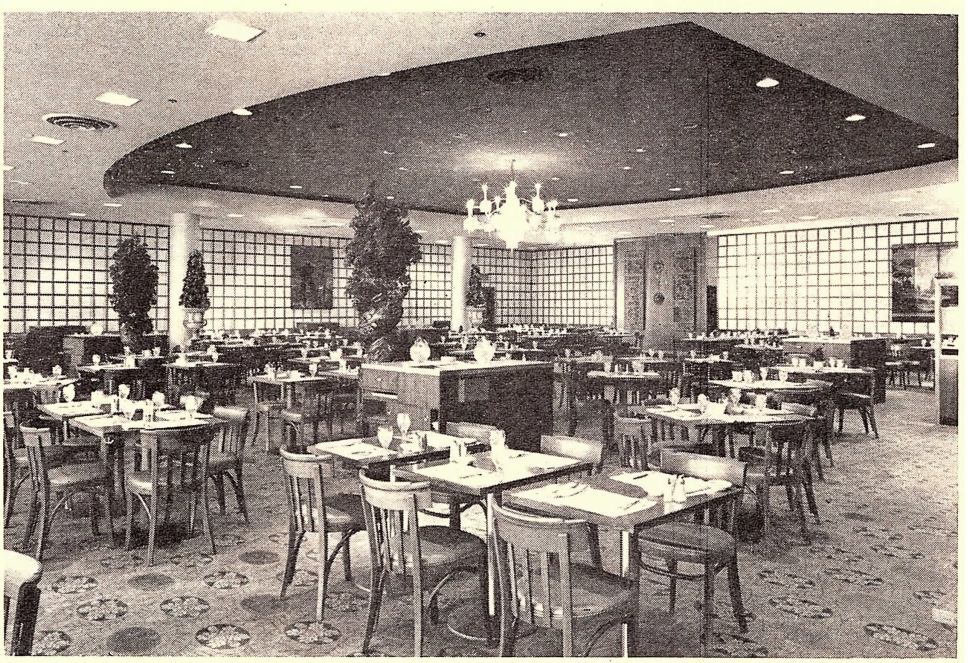
NORTH



INTERIORS REFLECT REGIONAL CULTURE

Interior design of Bullock's San Fernando, also by Welton Becket and Associates, echoes the Spanish heritage of the area. Numerous antiques and art objects, including a fountain court (*left*) on the first level reflect early cultural influences in California including the Spanish, French, English and Oriental. Departments are spacious. Even the aisles behind show cases are extra wide. Colors are browns and beiges highlighted with gold. Ceilings are lofty with antique chandeliers. Woods and textured materials are used liberally with masonry and tile to accent the Spanish motif. Bullock's merchandising plans traditionally divide the store into many intimate shops, each identified by its own decor and individual lighting. All lighting is at a lower, softer level than is usual for department stores and is exclusively incandescent. On the top level is a 295-seat tea room (*below*) with oak furnishings and beige acoustical tile walls covered by a dark brown latticework of English oak.

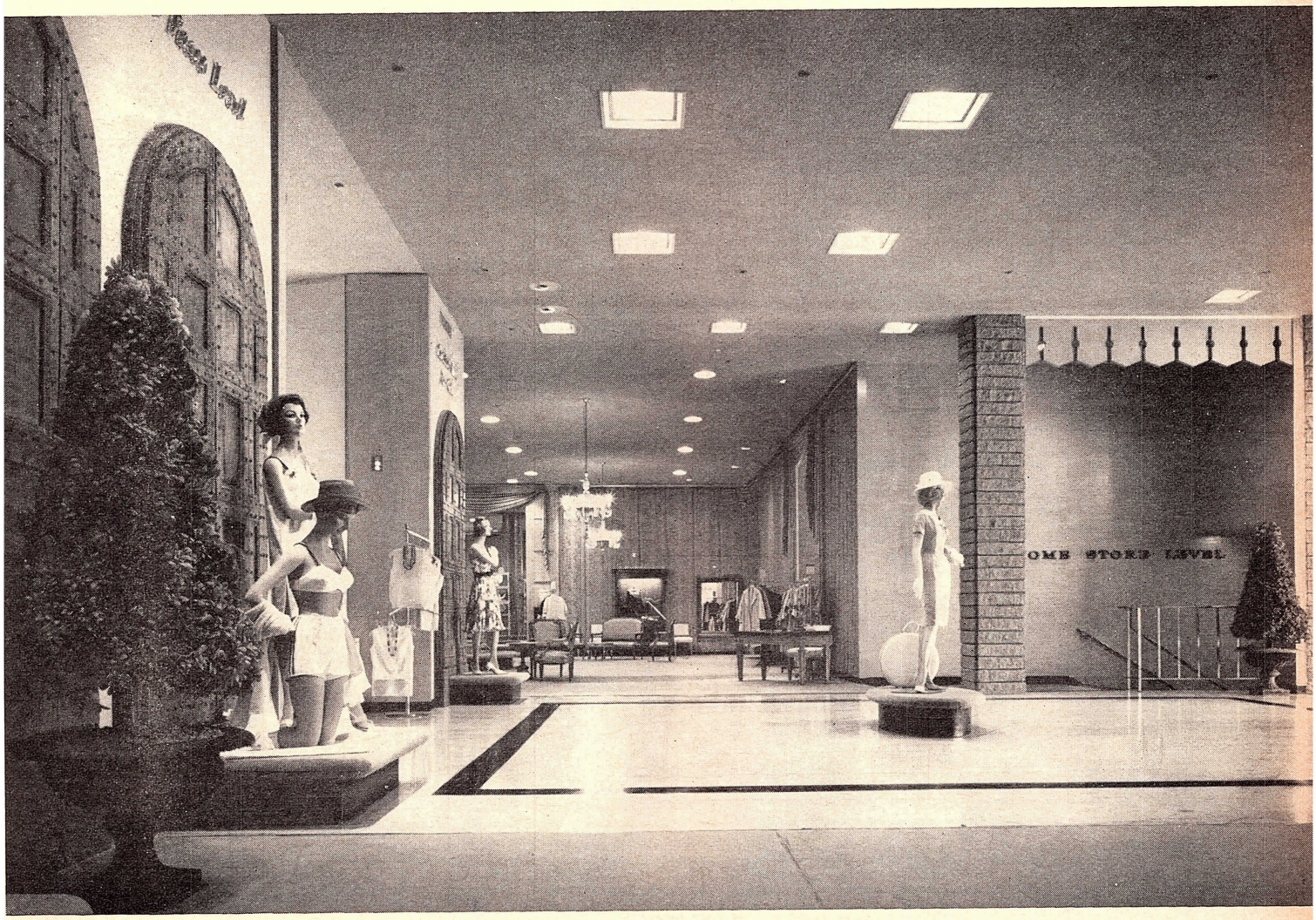








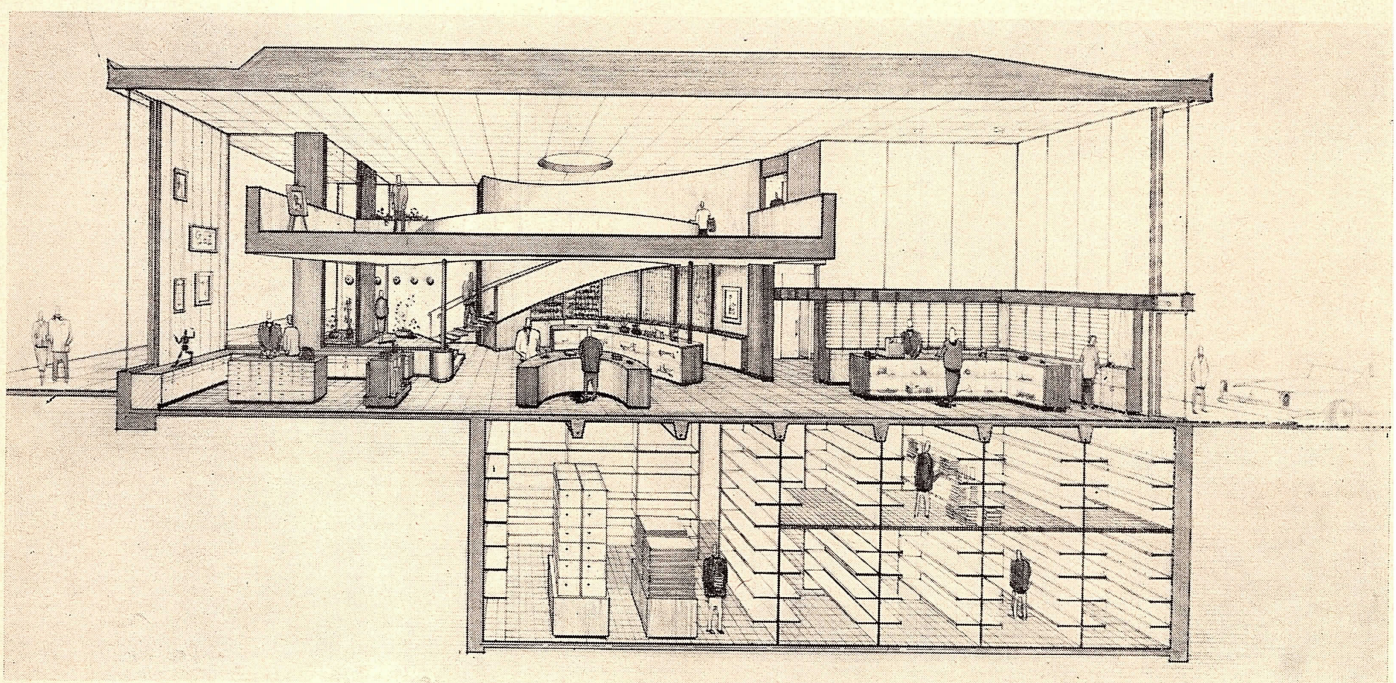


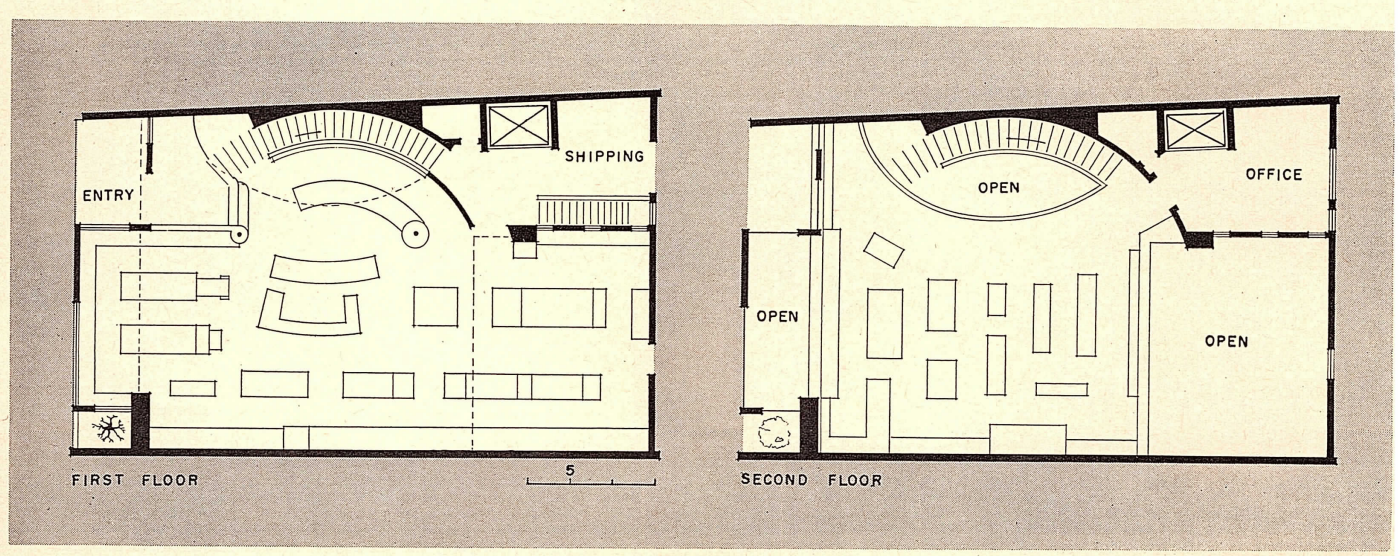

Main Level
OME STORE LEVEL

A SENSE OF SPACE IN A SMALL STORE

Designed for internal flexibility and operation with low overhead, this two-level and basement store for artists' materials fills a tight plot between existing buildings. Objectives were a sense of space and a directional flow in display arrangements in spite of the confining limits of the plot. Front of the store is two-story glass, with the entry recess marked by a full-height panel of white stucco which restates a motif established by an existing Flax picture frame store next door. A curved stairway to the upper level, with two-story open walls at front and rear, contribute to a sense of space and light. Interior walls and ceilings are plaster and acoustical tile. Displays retain a sense of order and high quality despite a multiplicity of small items. This is done by a disciplined arrangement of brushes and tubes on curved walls which generate a traffic pattern toward the rectangular shapes of other display pieces. Basement storage space for surplus inventory and stock control assures an uncluttered sales area.

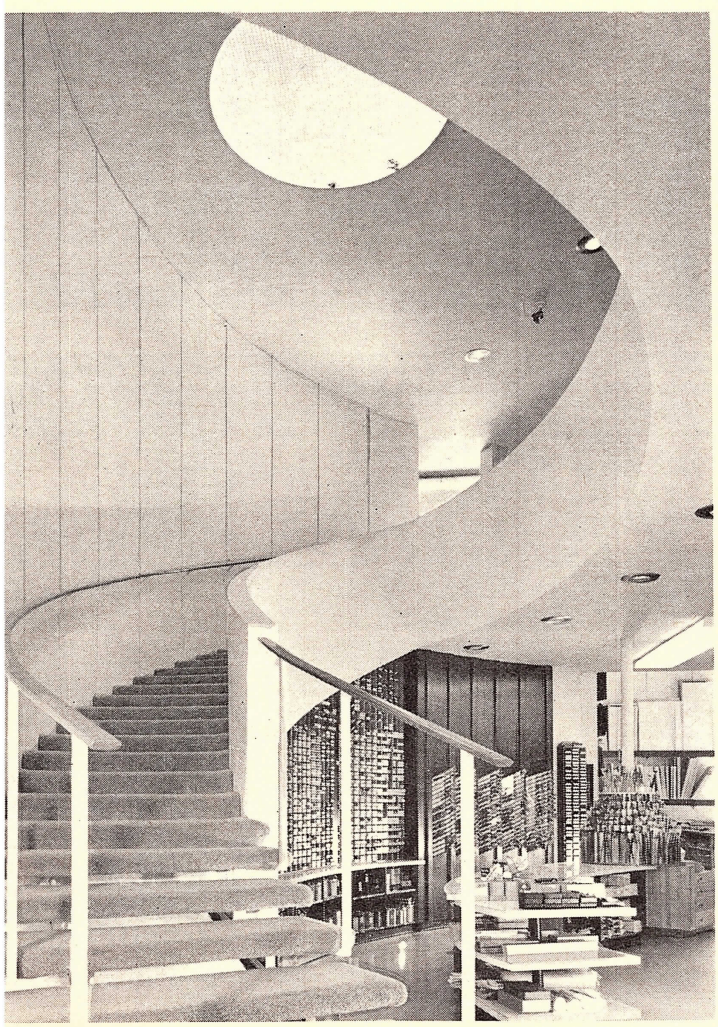
Flax Building
Los Angeles, California
OWNER: *Harvey Flax*
ARCHITECT: *Morris D. Verger*
STRUCTURAL ENGINEERS:
Reiss and Brown
MECHANICAL ENGINEER:
John E. Denton
ELECTRICAL ENGINEERS:
Sells, Berke and Associates
CONTRACTOR:
A. L. Miller Construction Company

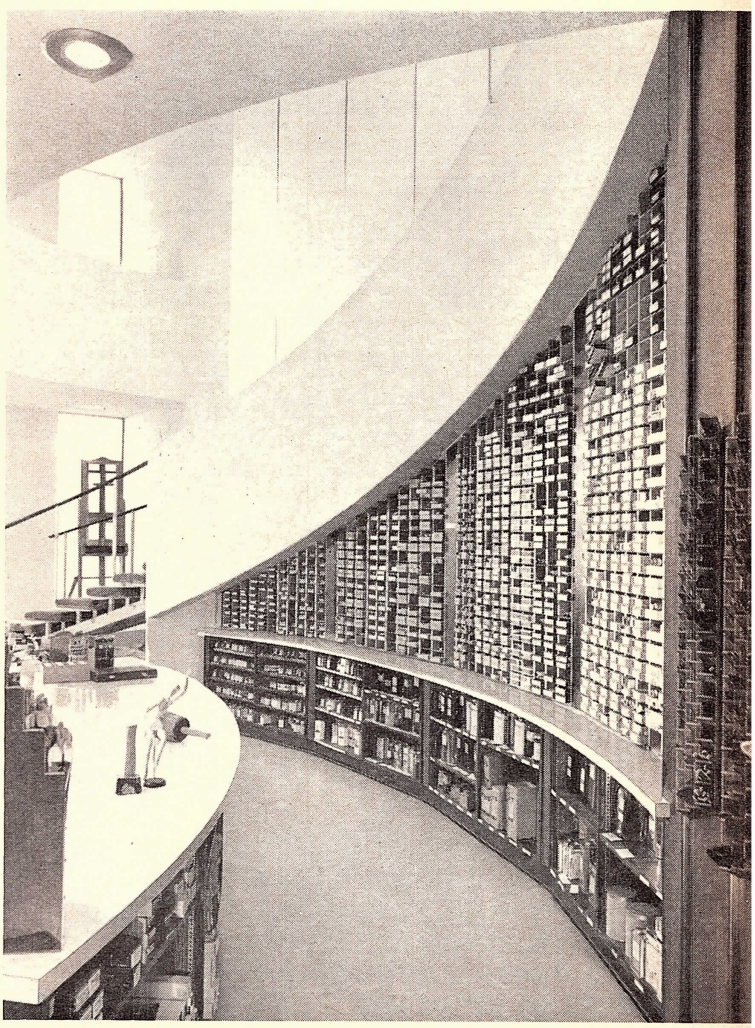






Leland Y. Lee photos





A FORMAL INVITATION TO QUALITY SHOPPING

This store specializing in high quality clothing and accessories bows to the traditional formality of its Palos Verdes setting. The disciplined order of horizontal and vertical lines of the building is echoed in the formal layout of pools and plantings in the two-level mall. Even the interior stairwell has a spacious angularity to accommodate wide treads and low, easy risers. Although neither massive nor austere, the strict formality is relieved by curved partitions and Spanish decorative accents of both mall and display areas. Exterior colors are greyed lavender brick with white columns supporting a white canopy which is separated from the roof line and generates ever-changing shadow effects; an inviting counterpoint to the hills and valleys of the general terrain. The store is cut into a hillside to provide entrances at two levels. The mall is at the upper level and general parking area is at the lower level. A bridging walkway (*opposite, below*) provides mall-level access to a planted deck over covered parking and storage.

Buffums' Palos Verdes
Palos Verdes, California

OWNER: *Buffums' Department Stor*

ARCHITECTS:
Killingsworth-Brady and Associate

STRUCTURAL ENGINEER:
Ben L. Schmid

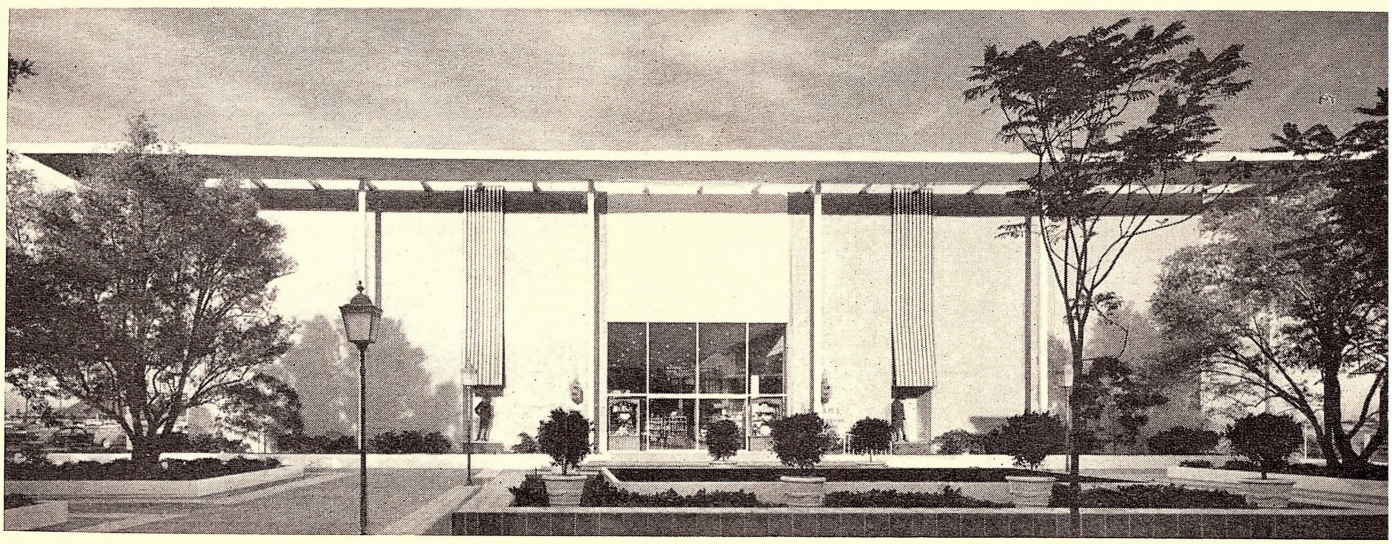
MECHANICAL ENGINEERS:
Kilpatrick & Company

ELECTRICAL ENGINEERS:
Continental Engineering, Inc.

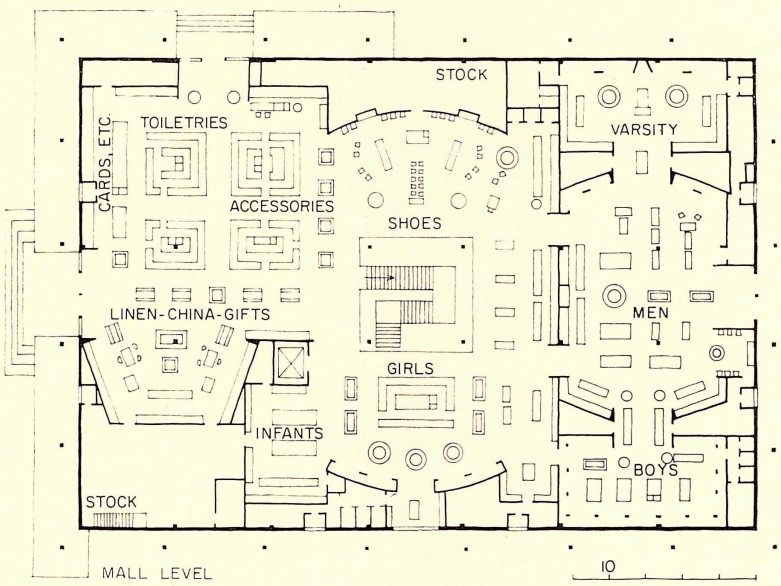
INTERIORS:
John Nicholson

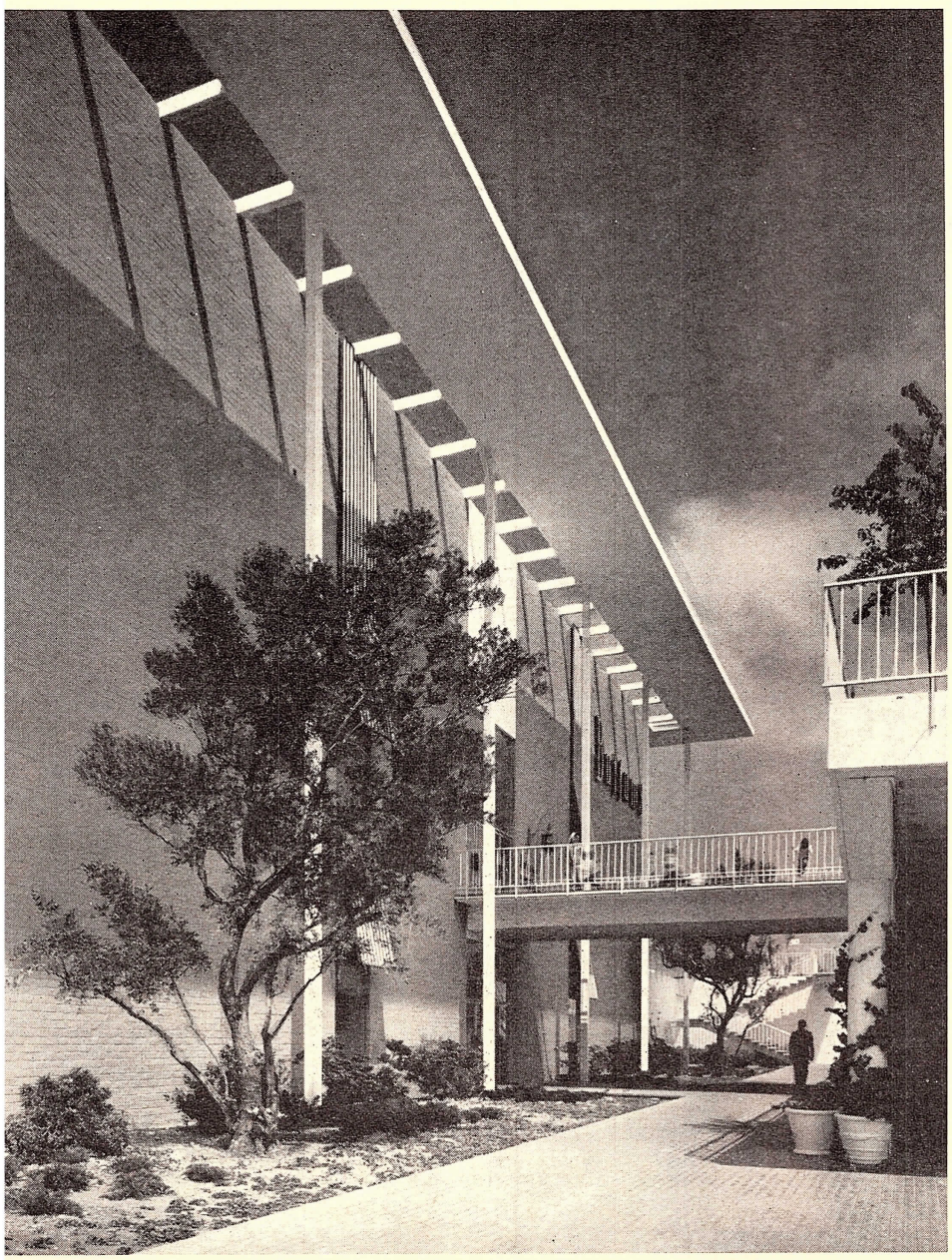
GENERAL CONTRACTORS:
William J. Moran Company

Julius Shulman photos






STOCK
TOILETRIES
CARDS, ETC
ACCESSORIES
SHOES
VARSITY
LINEN-CHINA-GIFTS
MEN
GIRLS
INFANTS
BOYS
STOCK
MALL LEVEL
10







REGIONAL CENTER HAS OPEN AXIS MALL

This shopping center was conceived as a single-axis regional center with a major department store at each end. The open mall is 60 feet wide and 900 feet long with a gently graded slope from the second level of the Hecht store at the south end to the ground level of Stewart's at the north. Grading was devised to avoid any steps on sidewalks or steep embankments in the front parking area. A barrel-arch motif is established by a 70- by 160-foot canopy vaulted 40 feet above a paved community meeting area in front of the supermarket at the west end of the cross-mall. The barrel arch theme is echoed in the "bow-tie" arches of quartz aggregate marking three major entrances to the Stewart's store. These are set between columns in front of 42-foot high glass facades. Exterior walls of Stewart's are white rough textured brick which is repeated as a unifying element throughout the center. Color-keyed accents are light grey brick, charcoal slate and charcoal porcelain fascias.

Reisterstown Road Plaza
Baltimore, Maryland

OWNER:
Food Fair Properties Agency, Inc.

ARCHITECT:
Lathrop Douglass

ASSOCIATE ARCHITECTS:
Bonnett & Brandt

STRUCTURAL ENGINEERS:
Throop & Feiden

MECHANICAL ENGINEERS:
Sidney W. Barbanel

SITE ENGINEERS:
Raymond Keyes

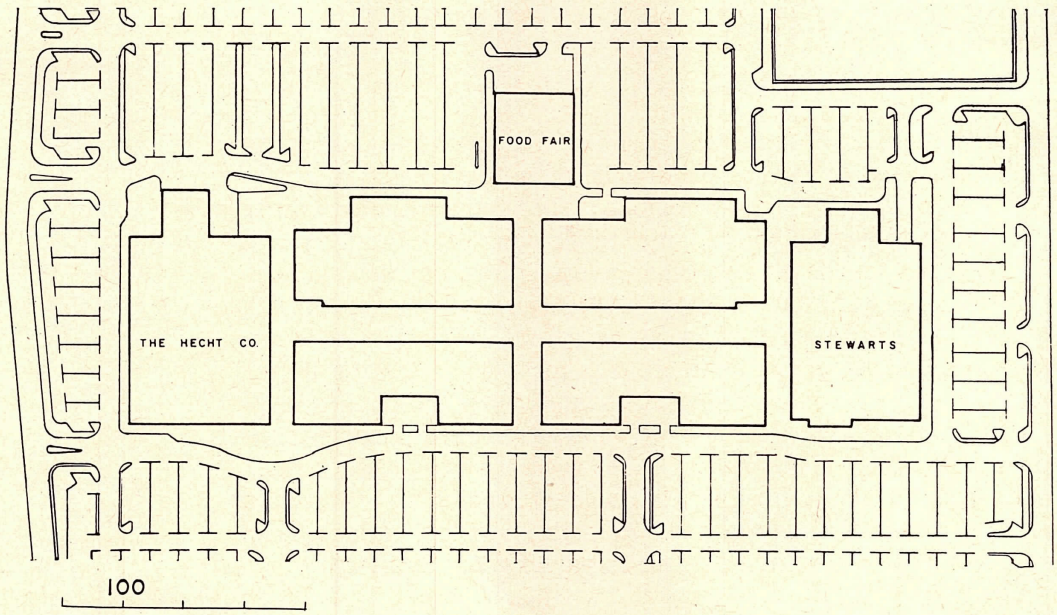
LANDSCAPE ARCHITECT:
Boris Timschenko

Peter Pruyn photos









Architectural design and interior design and planning for Stewart's (*below*) were by Raymond Loewy/William Snaith, Inc.





Gottscho-Schleisner, Inc. photos



A FULLY ENCLOSED AXIS MALL

The axis-mall, fully enclosed and centrally air conditioned, makes a shopping oasis of this regional Florida center. Approach to the low-profile structure is signalled by twin towers at its major entrance. The towers have no other function, and their introduction to the hanging gardens of the mall within is, perhaps, a regional touch. As reported in the February issue of the RECORD, and in context with the architectural climate of its region, the jury which gave this shopping center an honor award from the South Atlantic Region of the American Institute of Architects said: "In the welter of cast concrete envelopes adorning so many of today's buildings, this shopping center keeps its head and serenity and shows tremendous craftsmanship." Mall area is 41,000 square feet and gross rentable store area is 468,000 square feet. Natural daylighting of the mall is accomplished through 2,500 square feet of skylighting inserted in a pre-cast concrete ceiling. Walls above stores are plaster finish. There is parking for 3,000 cars.

Winter Park Center
Winter Park, Florida

OWNER: *Robert H. Jacobs*

ARCHITECTS:
Toombs, Amisano & Wells

STRUCTURAL ENGINEERS:
Smith, Hardaker and Huddleston

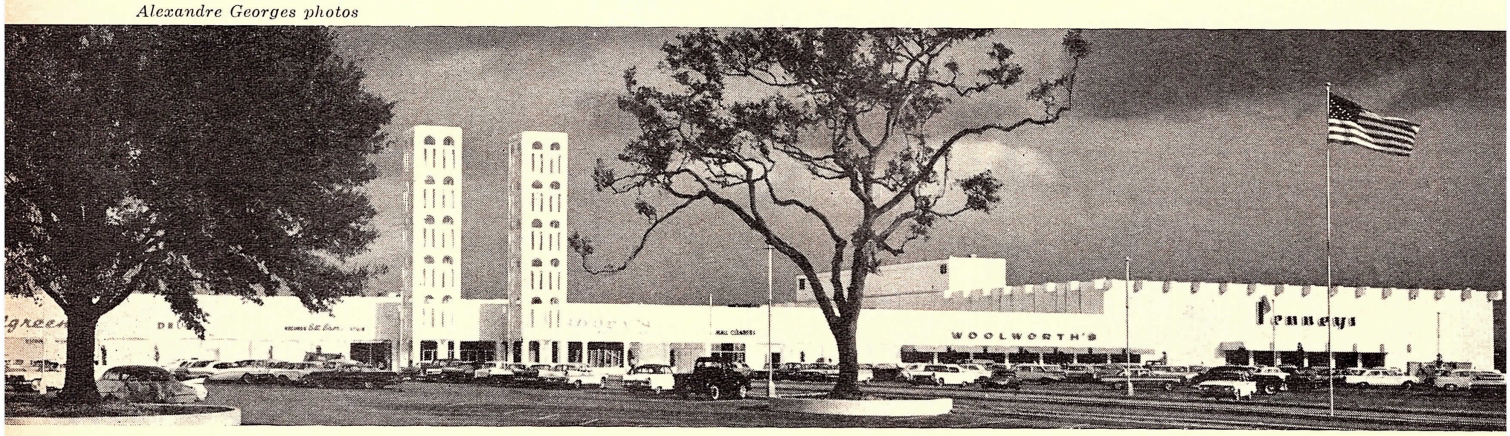
MECHANICAL AND ELECTRICAL ENGINEERS: *Newcomb & Boyd*

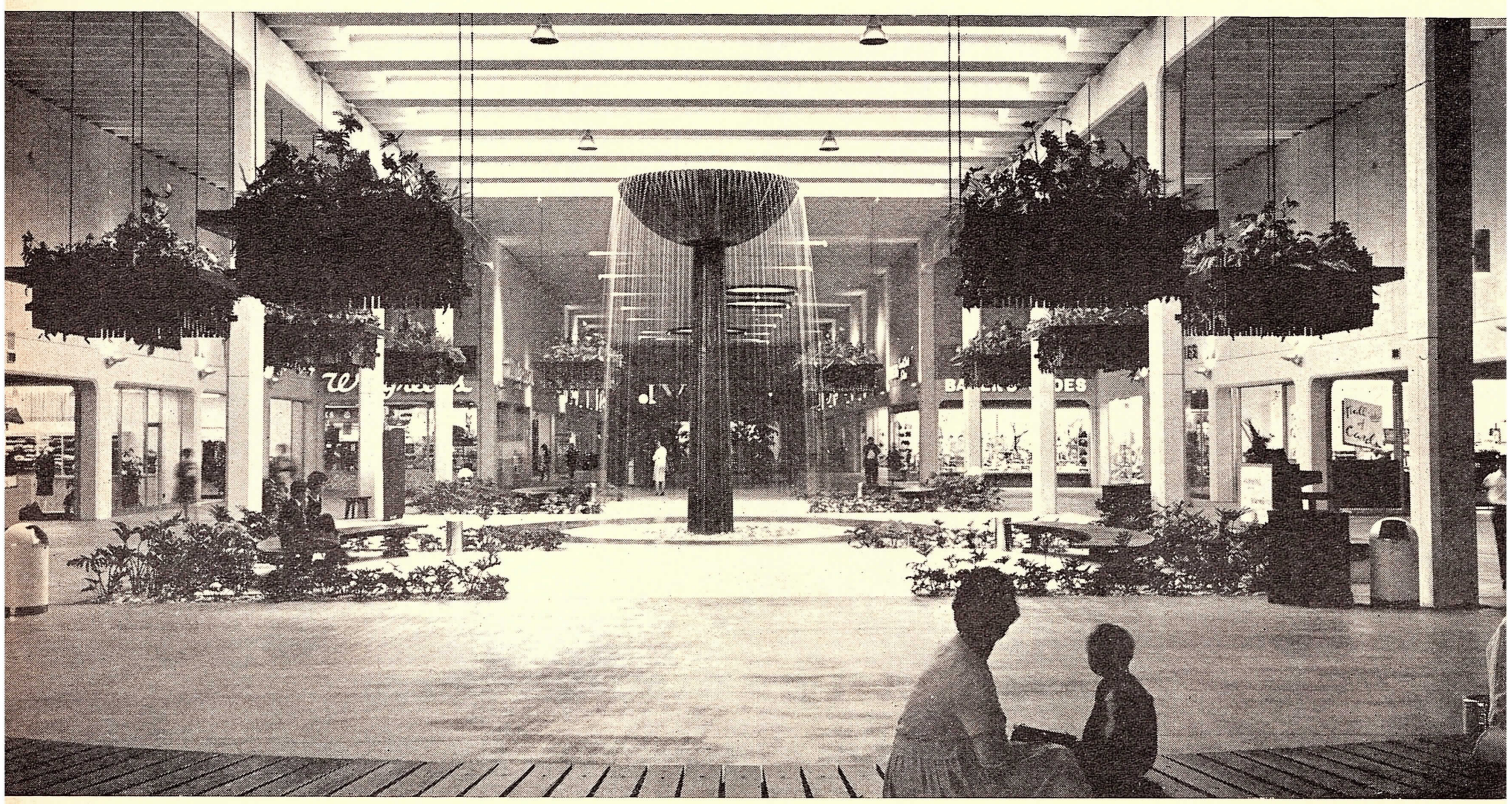
LANDSCAPE ARCHITECTS:
Sasaki, Walker & Associates

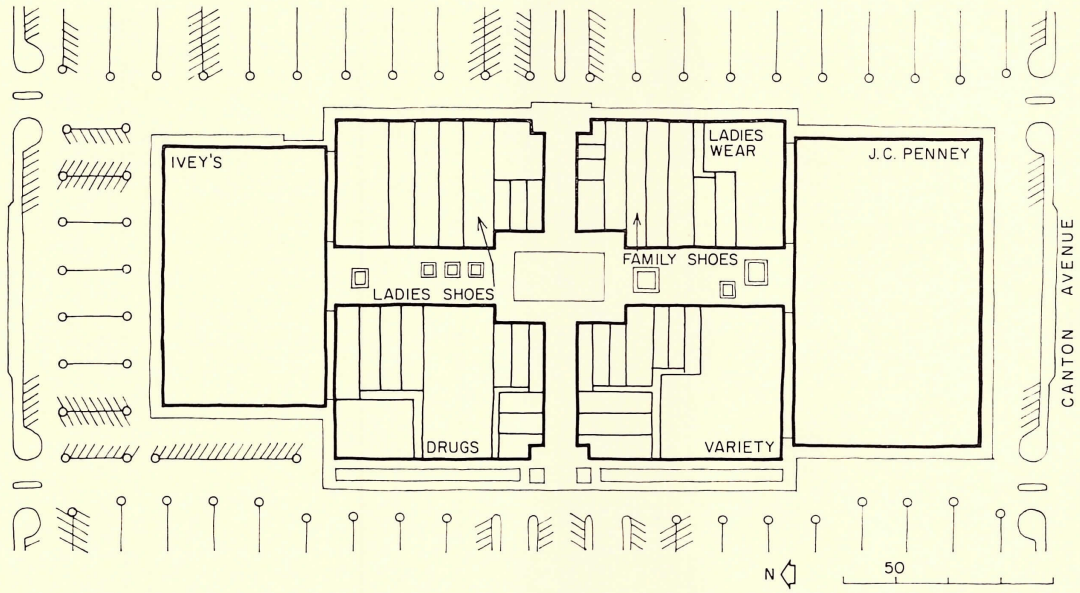
ACOUSTICAL CONSULTANTS:
Bolt, Beranek & Newman

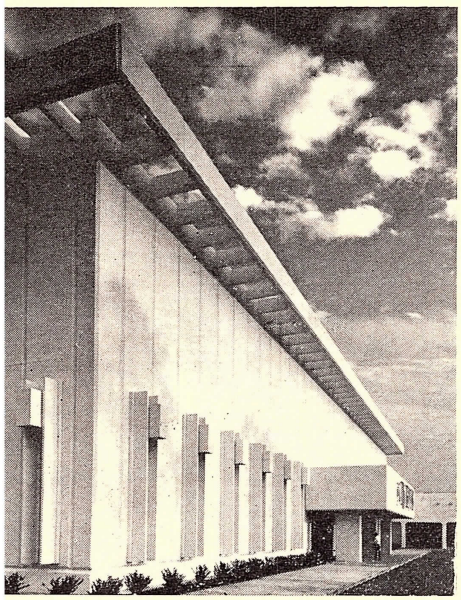
GENERAL CONTRACTOR:
S. S. Jacobs Company

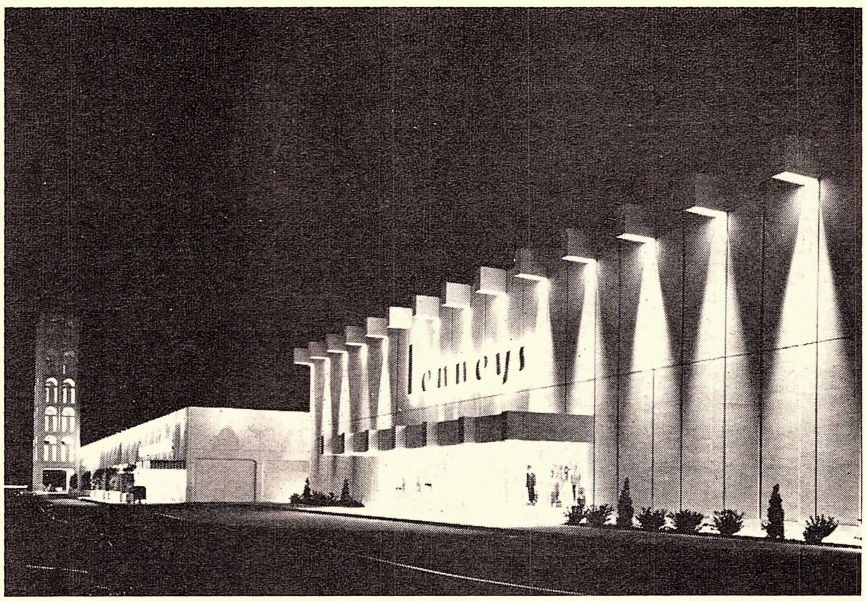
Alexandre Georges photos



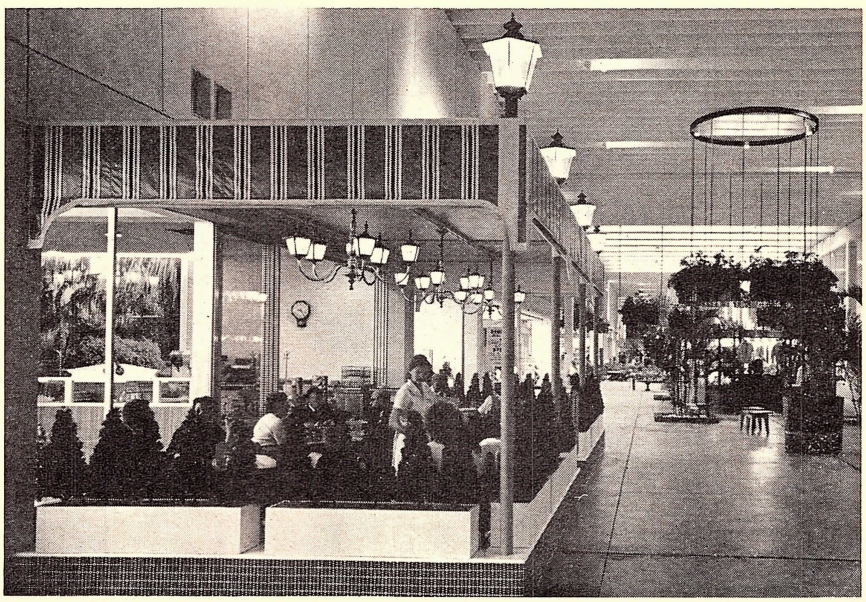



IVEY'S
LADIES WEAR
J.C. PENNEY
FAMILY SHOES
LADIES SHOES
DRUGS
VARIETY
CANTON AVENUE
N
50

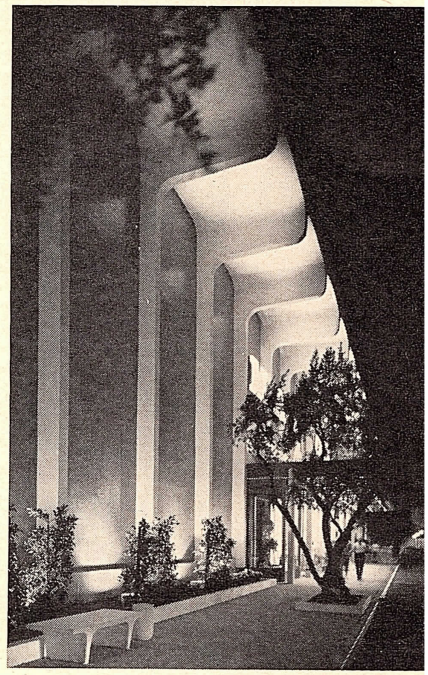



Penneys









Gordon Sommers photos

FLEXIBLE PROTOTYPE FOR A WESTERN CHAIN

The Buena Park May Company store, first of its type to be completed in a program of chain expansion, establishes a design concept and vocabulary for a series of similar units which will be repeated in various locations throughout southern California. The basic design is a three-level structure, 236 by 340 feet, which can be adapted to either single or two-level parking or combined with a multi-level parking garage. Exterior walls are 12- by 33-foot panels finished in a gold-tone glass mosaic tile selected for easy maintenance, long-term color value and response to varying conditions of light and shadow. Panels are framed between pre-cast concrete ribs which form a projecting arched top. Structure is reinforced concrete frame with metal stud filler walls. Floors are concrete pan-joist construction. Mechanical equipment is roof-mounted.

The May Company Department Store
Buena Park, California

OWNER-DEVELOPER:
The May Company

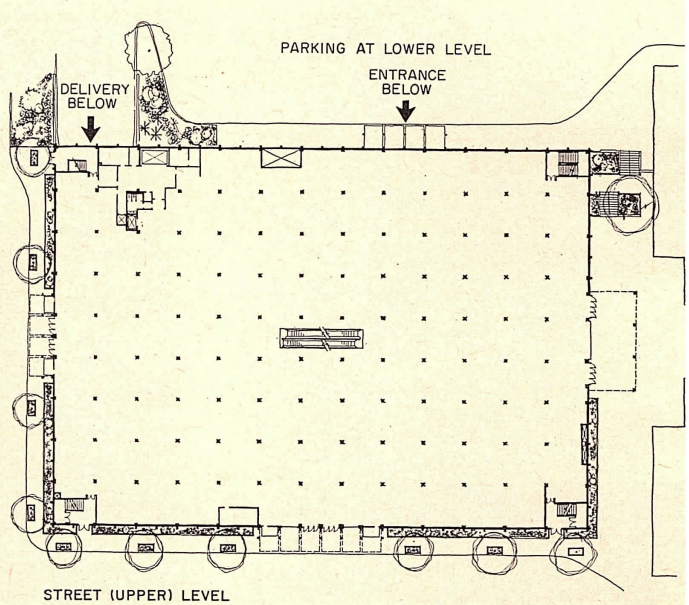
ARCHITECTS AND ENGINEERS:
Victor Gruen Associates

PARTNER IN CHARGE:
R. L. Baumfeld

MERCHANDISING AND INTERIOR DESIGN:
Welton Becket and Associates

GENERAL CONTRACTOR:
Lindgren & Swinerton, Inc.

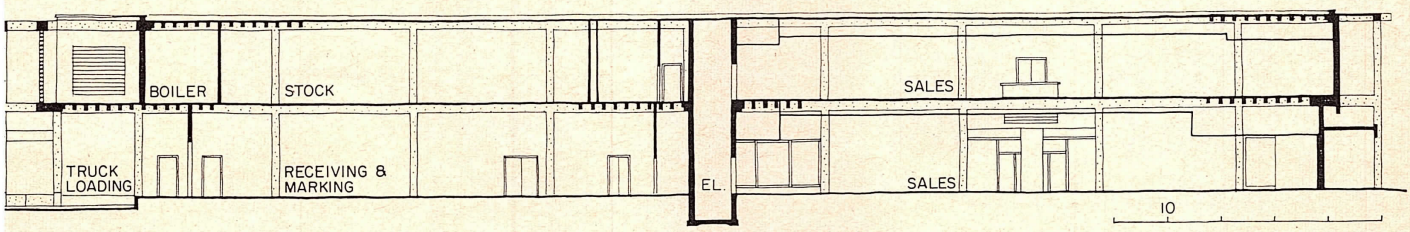


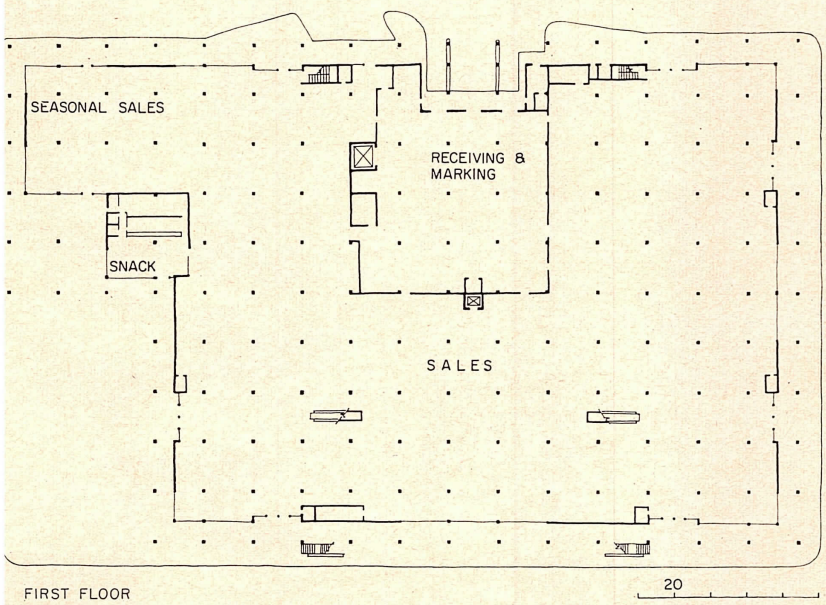


AN ASSERTIVE SEARS IN A CONCRETE CAGE

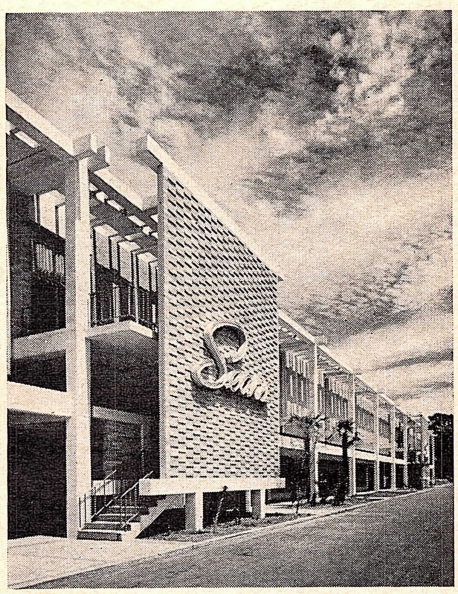
Sears Retail Store
Baton Rouge, Louisiana
OWNER: *Sears Roebuck & Co.*
F. E. Davidson, company architect
ARCHITECTS AND ENGINEERS:
A. L. Aydelott & Associates

Concrete framing of 26-foot bays is extended about eight feet beyond exterior walls of this assertive Sears store. This exterior caging of exposed columns and beams is topped, around most of its perimeter, by a pre-cast, pierced concrete screen which generates changing shadow patterns on exposed aggregate panels and brick walls. Street entrances providing access to both first and second floors are marked by pierced brick screens bearing the company's signature. An outdoor sales area and one-story garden shop extend the first floor plan by three bays to the west. Glass and brick walls of the first floor are recessed, creating a sheltered walk-way covered between walls and exterior columns by a concrete ceiling.

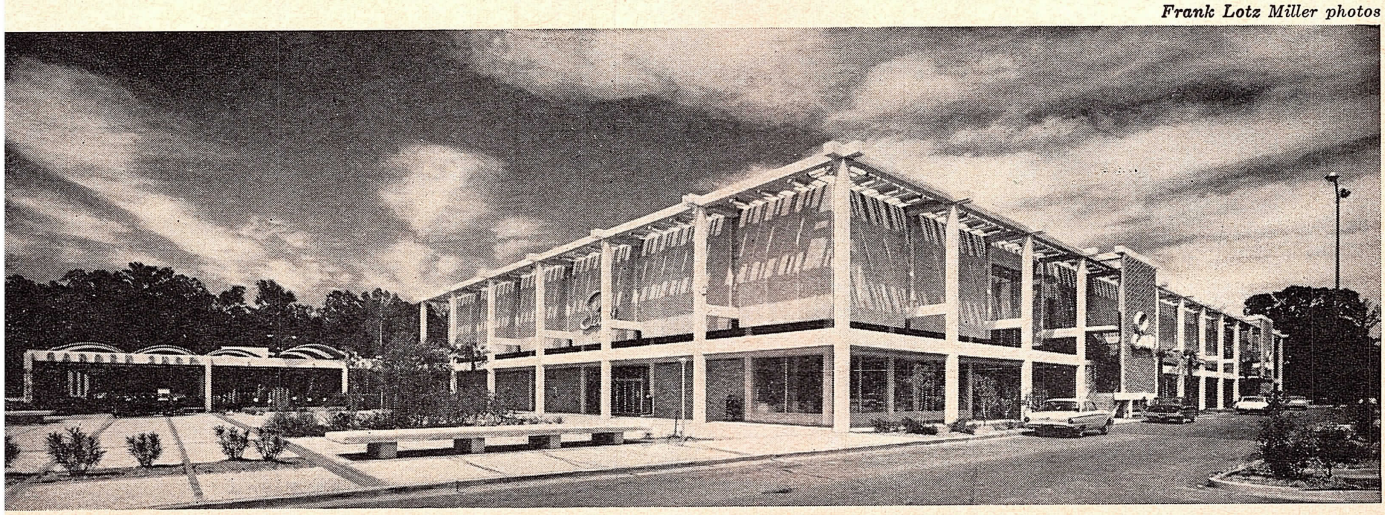


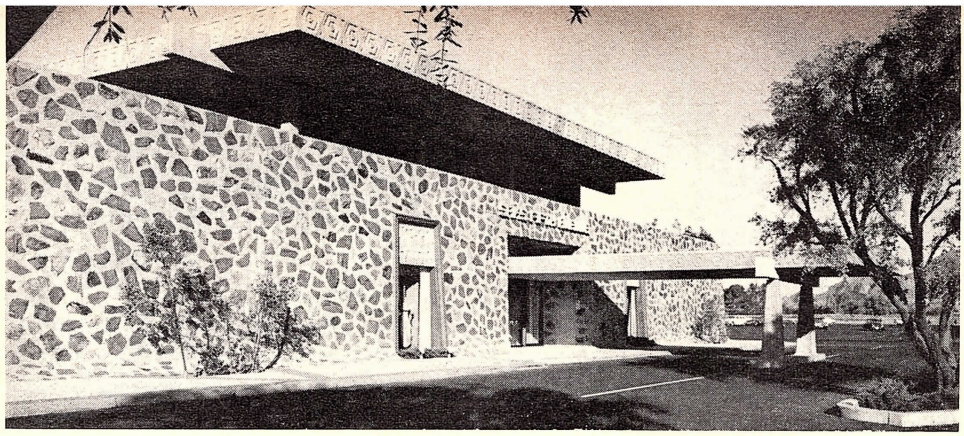


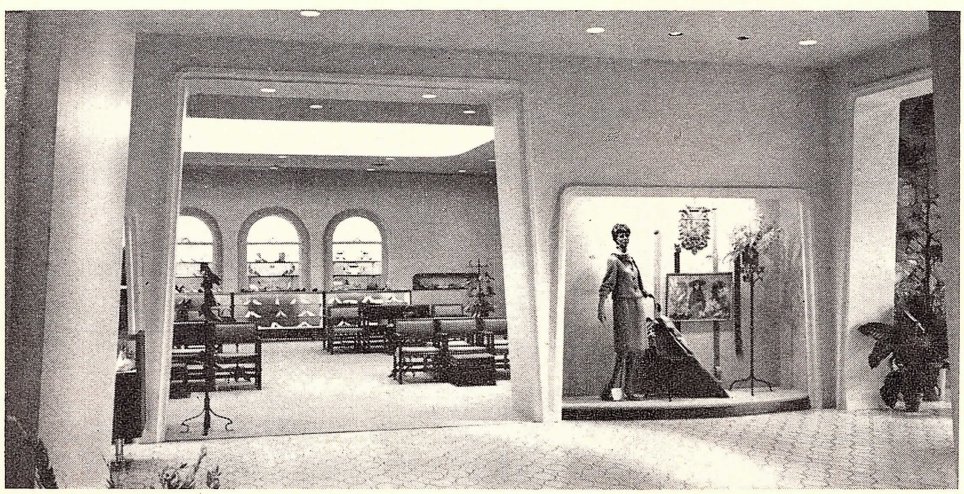
FIRST FLOOR



Frank Lotz Miller photos







Marvin Rand photos

SPANISH-INDIAN THEME FOR A PHOENIX STORE

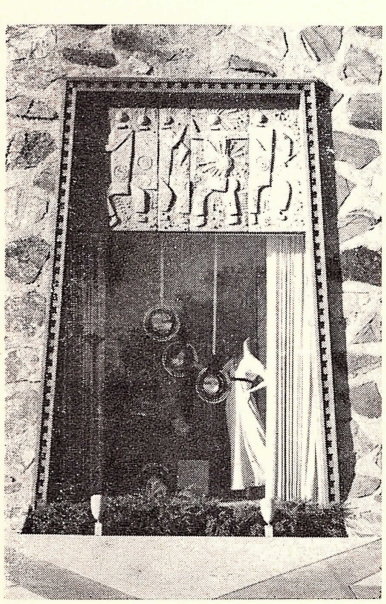
Colors and textures of the Arizona desert animate this store for Saks Fifth Avenue in the Biltmore shopping center in Phoenix. Spanish Colonial and Indian heritages are expressed in the materials used: sloping first-level walls of native stone imbedded in grey-brown concrete; a setback top floor of grey and brown brick with contrasting white concrete for exposed columns and beams supporting a 4-ft overhang with decorated frieze; interiors done by the architect in rough woods, white plaster, mission-type adobe plaster and patterned tile. Trapezoidal arches and windows carry out the native theme. Sculptured sand-cast panels are by John Smith.

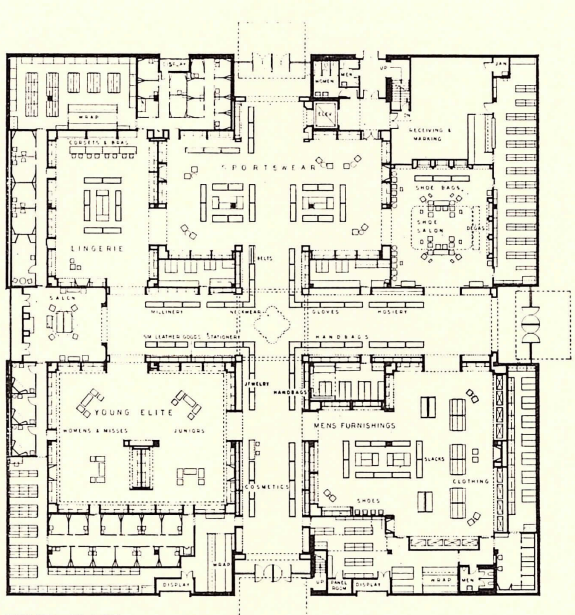
Saks Fifth Avenue Store
Phoenix, Arizona

ARCHITECTS AND ENGINEERS:
Welton Becket & Associates

STRUCTURAL ENGINEER:
Richard Bradshaw

GENERAL CONTRACTOR:
Chanen Construction Company





FIRST FLOOR

Architectural Engineering

Lighting Researcher Proposes New Basis for a Code

A new basis for a lighting code has been suggested by Dr. R. G. Hopkinson, professor of environmental design and engineering at University College, London. Professor Hopkinson, who conducted research on psycho-physical methods for studying lighting and vision at the Building Research Station in England, has proposed that a lighting code must ultimately be expressed in terms of apparent brightness, with lighting design being related directly to the lightness and darkness of the general surroundings. Professor Hopkinson gives the following example of this concept in his book, "Architectural Physics: Lighting," in which he assumes an architect wants a supermarket to look as bright as day: It is not necessary to provide the amount of illumination the sun offers (10,000 lumens/sq ft), but the engineer could determine the apparent brightness, which would make the supermarket seem as bright as day with artificial lighting at a much lower level of illumination, taking advantage of the eye's ability to adapt.

While it might take some considerable time for the apparent brightness concept to be made the basis of lighting technology, Professor Hopkinson has recommended that the new British I.E.S. Code break away from the concept of illumination levels for a long list of tasks and give instead a much shorter table of the levels appropriate in common situations. The basis of design, according to Professor Hopkinson, should be to maintain a suitable balance of brightness between the task (or features of special interest), their immediate surroundings and the general background.

New Evaluation of Artificial Daylight

Dissatisfaction with artificial daylight sources has led to a new evaluation of typical daylight in the ultraviolet and visible parts of the spectrum by laboratories in England, Canada and the United States. New "daylight" curves are being used as targets by manufacturers of artificial daylighting equipment to produce new sources. One of the new sources may have a color of the lightly-overcast blue sky favored in this country and Canada for industrial inspection. Another may correspond to the color of a completely overcast sky as favored in Great Britain, because it is typical of British daylight. Still another may correspond to the color of light from the sun at an angle of about 30 degrees above the horizon. The sources will be mainly used for industrial inspections, colorimetry and for determining color specifications for raw materials and manufactured goods.

The Future of Timber Supplies in the U. S.

The timber situation in the United States is considerably improved over what it was ten years ago, according to a new report by the U.S. Department of Agriculture. As a result of intensified forest fire control, tree planting, and other measures over the past 20 years, annual timber growth now exceeds the cut.

In contrast to the favorable trend in volume, however, the quality of available timber supplies has continued to diminish, because a major part of the timber cut comes from trees of larger diameter and preferred species, whereas most of the growth is in small trees.

For example, the Forest Service notes that, in eastern hardwood stands, less than 10 per cent of total inventory volume is made up of trees more than 15 inches in diameter—of species such as select white oaks, yellow birch, hard maple, ash, walnut, and yellow poplar, for which there are well-established markets. In recent years about half of the hardwood plywood veneer has been imported, partly because of the diminishing supply of suitable, high-grade hardwoods. A still further decline in tree size and quality is expected.

This Month's AE Section

UNDERSTANDING DESIGN AND PERFORMANCE OF ENERGY PLANTS AND SYSTEMS, page 212. *THREE EXAMPLES OF PRECAST LOAD-BEARING WALLS,* page 218. *BUILDING COMPONENTS:* Potentialities of Roll-Formed Metal Shapes, page 225. Products, page 227. Literature, page 229.

ENERGY PLANTS AND SYSTEMS

A guide to control design and performance. Part 1: Energy Sources and Central Plants

By F. J. Walsh

This is the first of several articles on centralized energy plants, energy distribution systems, and on building energy utilization systems themselves. More and more architects and their consulting engineers must make recommendations concerning on-site electric power generation, all-electric concept, engine-driven refrigeration, engine heat recovery, and district heat distribution systems. Questions are arising not only in large applications such as college buildings and large hospital complexes, and industrial buildings, but also in connection with many types of commercial and institutional buildings.

The first article gives background on fuel and energy sources, utility company and energy suppliers and trends in manufactured equipment, followed by a discussion of energy plants and their historical background and development.

Later articles will include explanations of all important energy terms; energy control and transforming devices, engines and equipment; processes and cycles.

Energy plant and system comparisons will be presented in a completely new approach. This approach will use new definitions to take the mystery out of complex thermodynamic concepts.

These articles will deal with criteria relating to design, installation, operation and maintenance.

This is an age of ever-increasing demands for energy arising from the expanding population, automating industries and a climbing living standard.

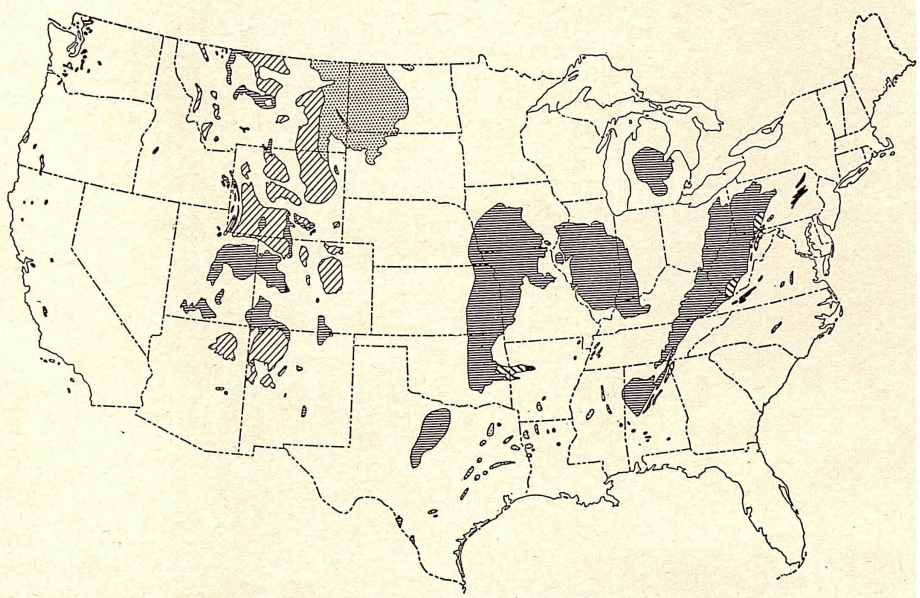
In the marketing of electrical and fuel energy, each group is striving for larger and more balanced markets, and for higher utilization of capacity by hour, day and season. Energy utilization equipment has been improved and used in new ways so that today it is possible to come closer to achieving the highest efficiencies in the uses of energy for building services. Therefore, architects and engineers must also enlarge their knowledge of energy-producing plants and how these relate to building systems before they can produce installations that best suit their clients' needs.

The author is a consulting mechanical and electrical engineer who has advanced education and background in engineering and business management. He also has experience in the petrochemical process and power plant fields.

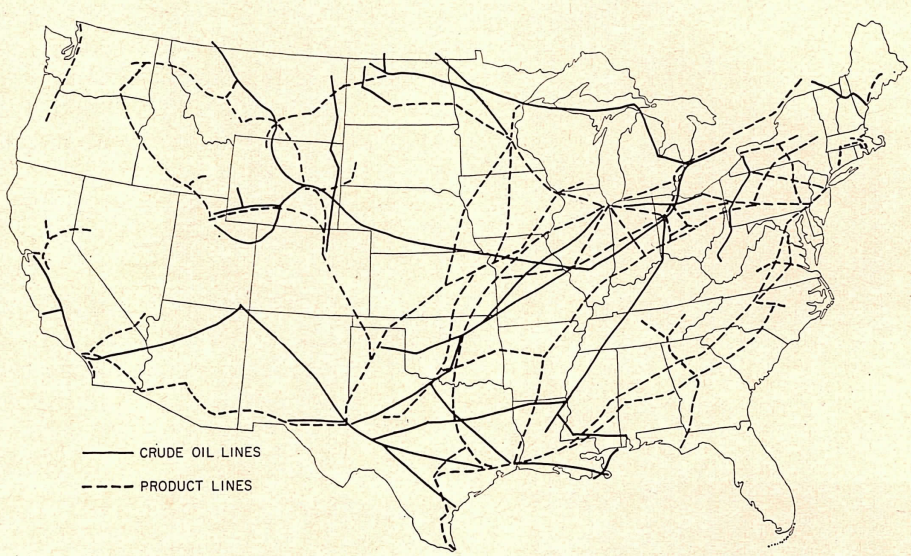
The Trend in Fuels

Any study of energy utilization must start with the operations of the major fuel producers and the regulated public utilities. Coal was once "King," but labor problems and expanded requirements for gasoline and diesel fuel for autos, trucks and the railroads, caused more oil to be produced, and as a result, more natural gas to be available.

The largest per cent of gas sales



Coal fields of the United States (Department of the Interior, 1960)



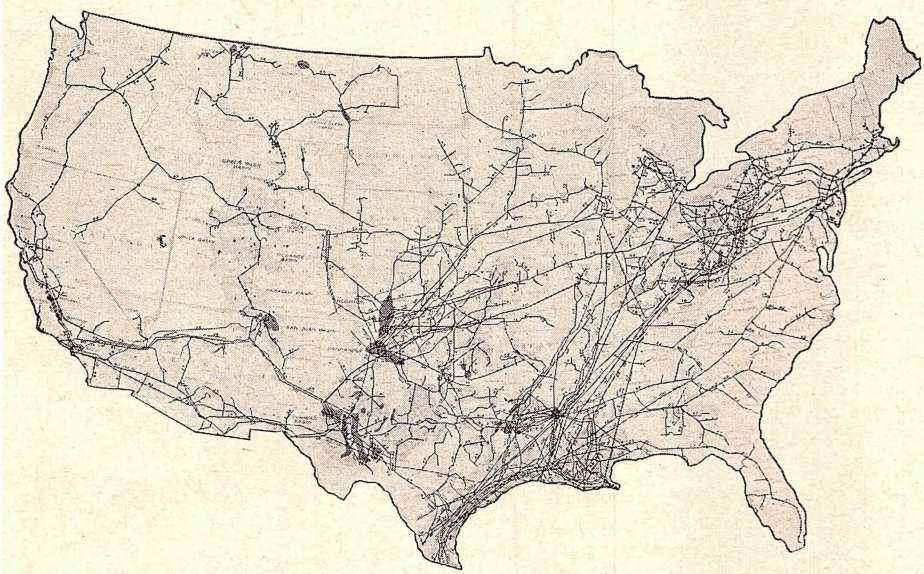
Major oil pipelines, crude and product

in 1964 was for residential use. In New Jersey, for example, this figure is 69 per cent, compared to 17 per cent for commercial and 14 per cent for industrial. A large part of the residential heating market using light oil has been lost to gas.

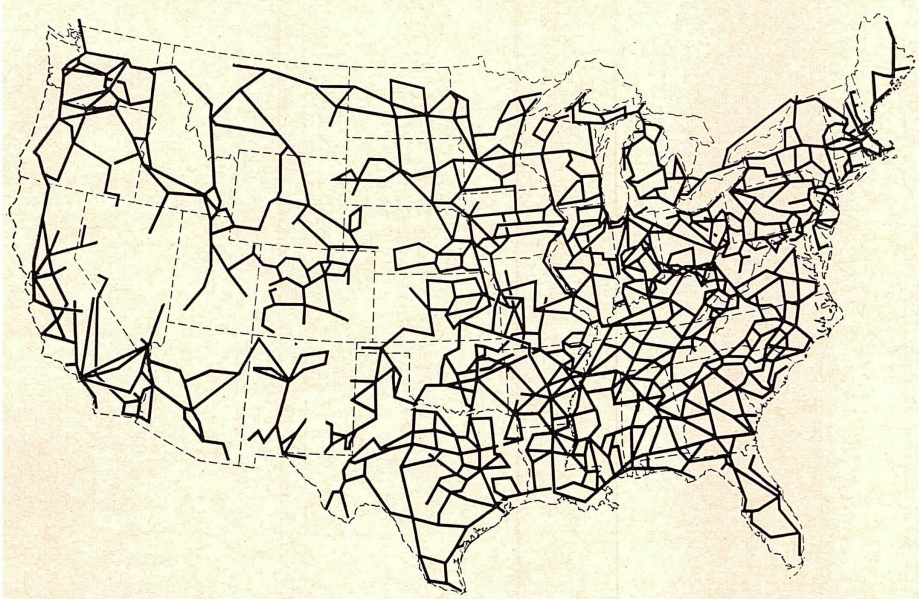
Natural gas has achieved a strong competitive position since World War II. A rapidly expanding network of natural gas lines has made that fuel readily available throughout the more densely populated areas of the United States. Gas demand in New Jersey has more than tripled in the last 10 years, according to the New Jersey Public Service Commission.

The price paid for electricity will probably go down. Technological advances in the mining of coal, the increasing size of generating plants, and the trend towards higher voltage distribution and interconnecting utilities across the country are cited as factors. It is quite definite that, within a decade, there will be a power grid from coast to coast.

What about the long range outlook for fossil fuel reserves? Dr. M. A. Elliot, vice president of the Illinois Institute of Technology, has stated that ". . . before the end of this century we will see the transition from an energy system based predominately on fluid fossil fuels to one based on solid fossil fuels which are processed to yield fluid fuels. The technology for converting oil shale into liquid fuels has been developed and its economic application is rapidly approaching. The technology for producing high Btu gas from coal is under intensive development, and all indications point to the availability of economic processes when they are needed."



Major natural gas pipelines (Federal Power Commission, 1964)



Electric transmission networks and interconnections (Edison Electric Inst., 1963)

More Aggressive Marketing

Fuel producers and utilities have increased their marketing efforts tremendously within the last few years. Originally their efforts were directed towards balancing the summer peak electric demand, on the one hand, and the winter gas or oil heating demand, on the other. But marketing efforts have now been accelerated to the point where, in many parts of the country, fuel or energy producers are making strong efforts to convince commercial, industrial, institutional and other medium-size plant owners to use a single source of energy for plant electric power, mechanical shaft power and heat energy requirements.

Where the local utility is a combined (gas and electric) utility, the problem of eliminating summer and winter peaks is approached by promoting the use of gas engine driven compressors, or absorption type air-conditioning units, to cut down on the peak summer demand for air conditioning. The promotion of fuel oil by its suppliers would have its greatest advantage in this situation, since utility company and fuel company rate schedules are set up after considering the existing competition among local fuel and energy sources, and not on a simple cost-accounting basis.

The concept of using a single fuel or energy source to provide all of the shaft power, electric power and heat energy requirements of a particular building, while not new, can be much more generally applied today—and in smaller plant capacities than heretofore. The reasons for this are (1) increased building air conditioning and lighting requirements, (2) advances in air conditioning cycles and (3) the availability of high-speed engines. It is obvious that familiarity with equipment technology, application methods and problems is mandatory for today's consultant.

The feature of on-site electric power generation being cited by the fuel producers and equipment manufacturers is the "free" heat energy,

obtained from engine heat rejection, which would normally be wasted. If enough of this energy can be utilized on a proper basis, and the basic fuel cost is low enough, then the net cost of prime shaft or electrical power may be lower than if it were to be purchased from an electric utility. Charged against any savings in energy cost must be the owning costs of the equipment—amortization and maintenance.

The same concept, which is not very actively promoted to commercial users at this time, would apply where coal is used, except that a boiler plant and steam turbines would be required instead of engines (internal combustion or gas turbine).

The reason for this is that required minimum plant size is 3000 kw in order to achieve sufficiently high efficiencies, and the boiler plant must be on the order of 400-600 psig. Also, the steam and turbine cycles are more special and complex than for usual commercial applications, although they are standard in larger system usage.

Certain fuel-source power and heat generating plants, which normally operate on a single fuel, have provisions for a switch-over to a second fuel if fuel availability or cost so dictates. A boiler plant, particularly a larger one, is highly flexible in this respect. Many plants, particularly utilities plants, are designed to burn solid, liquid, or gaseous fuel.

Standard gas or diesel engines are usually built to use only one fuel. Some diesels can burn either light or heavy oil. The most flexible internal combustion engine is the dual-fuel engine, which normally runs on natural gas or diesel pilot oil. It can be set to switch automatically from one fuel to the other.

The smaller sizes of gas turbines will burn only gas or light oil. The larger and more complex cycle turbines use heavier fuel, even residual oil.

Lacking fuel flexibility for a total energy plant, the customer may select a single fuel source for only a portion of the total energy requirements (e.g., air conditioning by engine-driven air-conditioning unit, or fuel-to-boiler supplied, or direct-fired absorption units; heating by steam boiler or direct-fired heaters).

The cost of making engineering economy studies sufficiently comprehensive to weigh all reasonable alternatives is often considerable. It is the consulting engineer's responsibility to assess the validity of all claims. Unless the consultant establishes (at the inception of the project) pertinent points of comparison, indicates how complex a proper evaluation will need to be, and suggests that a separate study be made, he can hardly do more than give superficial consideration to the various proposals.

The insufficiently prepared building consulting engineer can easily be overwhelmed by extensively worked-out engineering details and studies made by various fuel and energy advocates, who are attempting to sell "mass market" owners directly (i.e., medium-size commercial, institutional and light industrial owners).

Much of the equipment used in on-site power plants is unfamiliar. The energy cycles are complex and the controls sophisticated. For this reason, the advent of these plants has been accompanied by the rise of specializing consultants from engineering, construction and financing areas. Service contracts can, of course, be obtained from equipment suppliers, utility companies and packaged power firms. Thus, these entrepreneurs cover all phases, from surveys through design, engineering, installation, operation, maintenance and financing.

In heavy industry—power plants, chemical processing, oil refining, for example—engineering consultants always have comprehensive, current knowledge and experience in central plant equipment and systems. Clients in these fields are extremely knowledgeable and specify and measure plant performance at all operating conditions. Guaranteed performance is all-important to their over-all profit picture. While engineers who design central energy plants for these industries cannot be expected to be especially knowledgeable about commercial building systems, practices and costs, nonetheless they have developed up-to-date expertise in the area of engineering and equipment on complete energy plant design.

Pre-War Examples of On-Site Generation

On-site electric power generation for commercial buildings and hospitals, usually incorporating no attempt to recover engine waste heat was fairly common before the pre-World War II expansion of electric utilities, the improving of their rate structures and the wide-spread change from direct to alternating current for lighting and mechanical system power requirements.

In heavy industry applications of diesel and gas engines, heat recovery was common well before the start of the War, abstracting both jacket water and exhaust gas heat. In a few commercial applications, such as that in Namm's department store in Brooklyn, on-site power was produced by a diesel engine plant and jacket water waste heat was used for building heating.

Absorption refrigeration using a non-toxic refrigerant had not yet developed before the War. Today, steam or direct-fired absorption units are a big factor in air-conditioning.

District Energy Distributing Systems

Centralization of energy producing facilities is an important trend today. It is seen in some redeveloped downtown business districts, large housing projects, industrial plants, college campuses and airports. The production of all types of energy required for various widely scattered buildings is centralized in one plant, with simple terminal utilization equipment only being required in the buildings.

Reliability of Supply

Today's buildings require, more than ever, uninterrupted energy supply, whether for power, light, heating, cooling or processes. For instance, many industrial plants, hospitals, laboratories, and even commercial buildings require emergency electric power generating units, automatically started, as an essential protective feature.

In addition to service continuity, optimum service characteristics and stability of service are required to insure proper operation of various types of equipment. This is particularly true for hospitals, laboratories, electronic plants and other special facilities.

The design of plants for the on-site generation of steam, hot or chilled water, or electric power, must always take into consideration standby capacity; peak load require-

nents; extra plant capacity and the controls required to compensate for "pick-up" load starting requirements, rapid load swings, etc. The use of a utility supply allows a detailed consideration of these factors to be ommitted, although demand charges of various kinds may increase the cost over that for basic steady-state supply. The consumer in order to keep the demand charge low may be able to modify his design to suit utility company rate structures.

The Trend in Equipment

Equipment has been improved, primarily through the use of new and stronger materials having greater strength and heat resistance coupled with advances in machine design for great resistance to stress and vibration. Higher operating speeds, more sophisticated controls and advances in some of the finer aspects of heat cycle design have resulted in considerable reductions of size and cost of some types of equipment. Thus, manufacturers have been able to produce larger capacity units at the factory. Assembly at the factory leads to greater reliability and elimination of field installation errors.

Basic steam power plant and internal combustion engine plant cycles are the same as heretofore. High temperature water plants are to a large extent related to steam power plants, except for the utilization of the energy produced.

The gas turbine, admittedly, has a low prime power efficiency. The stated objective of gas turbine manufacturers is to increase the shaft power thermal efficiency to that of the gas of diesel internal combustion engine. For gas turbine application to be economically sound today, the process heat requirements must be quite high and continuous.

The maintenance advantages, fuel flexibility and compactness of the gas turbine offer considerable potential. And the predicted development of double-effect absorption refrigeration machines, if such materializes, would improve the economic picture for gas turbines and engines.

Central Energy Plants

Today the architect and owner are very often uncertain as to the relative advantages and disadvantages of a variety of primary and secondary energy plants, since their greatest concern is the over-all building design and its occupied or rentable areas.

Previously, choices were less numerous, and more importantly, plants were simpler. In recent years, the architect has been faced with decisions relating to on-site electric power generation, direct engine driven refrigeration units, recovery of rejected engine heat and comparisons of complex energy generating plants and distribution systems.

Back in the 20's and 30's, central plants were standardized, and problems were resolved after trial and error procedures. In the same way, building systems were standardized. Air conditioning was a rarity. Manufacturer involvement in building heating systems was great and many proprietary systems were developed. Quite often, modifications were worked out by consulting engineers in conjunction with manufacturers. However, the pace of change was slow. During this period the on-site steam power plant (or internal combustion engine power plant) lost ground due to the tremendous expansion, improved performance, and lowered rates of the electric utilities. While hospitals and institutional buildings sometimes used such plants, these did not include design advances found in the higher pressure and temperature central station power plant.

Because of this trend, very few mechanical engineering students elected to concentrate on steam power plant specialty courses, since there was a declining demand for men with this knowledge.

Considering the difficulty of evaluating today's energy plants, there is a growing need for engineers in commercial consulting offices with experience in large power plant work. This is somewhat of a paradox since the basic engineering background relating to steam power plant cycles is well established, having changed little in the last 35 years. Because of the limited number of personnel available and consequent high wages, most engineers with this experience associate with consulting firms doing work for petro-chemical, process plant, heavy industrial or utility power plant clients.

In the area of central energy distribution systems, district steam systems date from the early 1900's.

TYPES OF ENERGY PLANTS

1. PRIME ENERGY—Energy which can be converted directly to shaft work through the motivation of an energy conversion device.
Examples:
a. steam for a turbine drive
b. electric energy for a motor

2. SECONDARY ENERGY—Energy which cannot be used directly to produce shaft work but which can be used for useful process purposes.
Examples:
a. hot water for heating or process
b. chilled water
c. hot gases in a furnace
d. low pressure steam used for heating

3. CENTRAL PLANT—The complete assemblage of inter-connected equipment and auxiliary systems which function to produce or transform energy for the purpose of distribution and use outside the plant.

4. DISTRICT CENTRAL PLANT—A plant which serves a group of remote buildings through an outside energy distribution system.

5. BUILDING CENTRAL PLANT—Plant which serves a single building.

6. BUILDING ZONE CENTRAL PLANT—Plant which serves a single zone of a building.

7. CENTRAL PACKAGED ENERGY PRODUCING UNIT—A matched assembly of major equipment and controls—either completely or partly factory assembled prior to field installation—with supervised installation and start-up available from the manufacturer. The unit may either constitute a central plant in itself or require interconnection with auxiliary equipment and systems furnished and specified by someone other than the manufacturer.

8. UNITARY HEATING OR AIR CONDITIONING EQUIPMENT—Completely self-contained packaged equipment with secondary energy generating plant within the unit; also includes the additional packaged equipment provision for delivery of the energy so generated. The unit may be supplied with gas, oil and/or electric power with provisions for direct supply of heated or cooled air to a space or spaces on a single or multi-zone basis.

They were extended and renewed for higher pressures along with the advances in central steam power plant design practice which led to higher steam pressures. The obvious reason why these plants were installed was that steam could be extracted from the plant turbines and sold at a relatively high rate for heating or process purposes after having produced a substantial amount of power at a very economical cost.

In this same era, many colleges and institutions installed plants with or without on-site electric power and with district steam distribution.

Thus every detail regarding system design and economics for district steam has been investigated thoroughly and could be known to all consulting engineers. The National District Heating Association is the clearing house for such engineering information.

Any comparison of high temperature hot water versus district steam systems should take into account the established experience in the latter field.

Types of Central Energy Plants

1. *High-Pressure Steam Power Plant with On-Site Electric Power Generation*

a. The larger the steam plant, the better the opportunity to improve thermal efficiency through added complexity of cycle design. Plants with steam pressures from 400-600 psig would be suited to the industrial or process plant, college campuses, large hospital complexes and prisons. Plant operation actually is no more difficult than with a slightly lower pressure plant. The design of the plant and evaluation of all equipment is in the province of the power plant specialist.

Plant size would have to be above 3000 kilowatts to be practical. This type of plant is the largest which would be considered in the building field, and it can be designed for complete fuel usage flexibility.

b. Application of this kind of plant today would require that it be utilized also for providing secondary energy for heating, other high temperature process requirements, and for air conditioning as well. Optimum selection of equipment and systems not only requires an intimate knowledge of the steam power plant cycle, but also of heating and air conditioning plants. The latter must include an exacting knowledge of relative load variations year-round (including electrical) for all of the different building types and occupancies. Such knowledge is mostly within the province of the building consulting engineer. Adequate and accurate information on predicting loads and their variations is extremely difficult to acquire, however. The exception to this is information on certain standardized buildings with standardized mechanical systems, on which various utilities have collected very detailed data for their own use.

The large steam plant can provide steam for heating either through a district heating system or through a district hot water system, which can be a high temperature hot water system where required.

The possibilities for the generation of chilled water using steam as the energy source are innumerable. Factors which will determine the type of system include (1) cooling load variation (daily and seasonal), (2) relative cooling load variation with respect to electric demand, (3) heating load variation (daily and seasonal), (4) heating load variation with respect to electric demand, and (5) overlap of heating and cooling loads.

The larger size plant would tend to favor steam turbine driven centrifugal refrigeration units due to the limitation on size of steam absorption units.

Steam rejected from a steam turbine at close to atmospheric pressure and used in an efficient condensing turbine for driving refrigeration compressors uses no more steam than does an absorption refrigeration machine, and has almost the same efficiency down to about 25 per cent load. Thus it should be realized that steam extracted from turbines generating power is not "waste heat."

2. *Medium Pressure Steam Plants*

These plants (125-250 psig) are far less complex to design than the higher pressure plants, but still require specialized design know-how. Many plants in this category were utilized in past years to produce on-site electric power, but today generation is usually limited to standby power.

The most common and appropriate application of such plants is for institutional district steam or for large institutional buildings having a relatively large process heat demand which only steam at relatively high pressures (35-100 psig) will satisfy.

The basic choice here for the type of buildings mentioned will be between medium pressure district steam or high temperature hot water for the same purpose. High temperature hot water has gone through a long period of trial and error experience, in part due to it being a newer, complicated technology.

Size of plant is not of major concern, although fuel flexibility is related to size.

Steam turbine driven centrifugal refrigeration machines are in general the most economical choice for producing chilled water. Where the cooling load does not vary too much, the use of a non-condensing type turbine absorption unit might be considered.

Use of medium pressure steam to produce high temperature water utilizing a direct-mix steam-hot water system would be an anomaly.

3. *Low Pressure Steam Plant*

This type of plant, which operates at 15 psig and lower, requires very little discussion here. Usually its use is restricted to single buildings or closely grouped individual buildings.

Fuel flexibility is possible, but generally is restricted to gas or oil. Coal is very often used where there are abundant local supplies and storage is not a problem. Steam from these plants is never used for electric power generation or for driving refrigeration equipment for economic and space reasons. With these plants it often is very economical to use absorption refrigeration to produce cooling for air conditioning.

4. *District Steam from Utility*

Steam is almost always supplied in the range of 100 psig or higher. Therefore the same comments on usage apply as for the medium pressure steam plant. Since condensate is not returned to the utility, means are usually provided to abstract all residual heat by preheating domestic hot water.

In effect with this energy supply there is *total energy recovery.*

Internal Combustion Engine Plant

1. *Plant to Generate Electric Power*

In the larger plants (1000 h.p. or higher) gas and/or heavier oils are used, and usually there is provision for automatic shifting from one fuel supply to the other. Since, with this dual-fuel type of engine, combustion problems on low load operation are an important consideration, they should only be used where competent personnel are available.

Fuel flexibility on the smaller engines (100 to 600 kw) can only be accomplished by changing cylinder heads—which, while not costly, sacrifices performance and allows only limited fuel flexibility.

The top efficiency of smaller engines which use gas is less than the top efficiency of those using diesel oil because the latter can be designed for a compression ratio which is perhaps 75-80 per cent higher. This advantage is usually offset by the fact that diesel fuel often sells for a relatively higher price.

Thermal efficiency for all of the above engines is generally higher than all but the most efficient steam power plant.

2. *Plant to Generate Electric Power, Shaft Power and Process Heat*

The only direct heat from an internal combustion engine for process purposes must be obtained by use of the heat picked up by engine jacket water.

Load balance between electric demands and process heat may require that booster heating devices be provided where building system energy requirements are difficult to predict. Where exhaust heat boilers are used for the recovery of heat from hot exhaust gases, the design becomes somewhat more complex. If multiple units are required with automatic paralleling and load sharing, based on load sensing devices, then the technology begins to be in the same class as that required for high pressure steam power plant practice.

In simpler installations, where continuous full power is not required (as in stand-by plants), and manual operation or semi-automatic operation is acceptable, then the feasibility of internal combustion plants extends down to very low sizes—perhaps as low as 200 kw.

Feasibility of internal combustion generating plants depends on many factors, but the general rule would be that additional complexity is allowable in proportion to the increase in plant size. For example, with large heavy-duty, dual-fuel engines and a favorable load situation, full heat recovery and automatic features might be justified.

3. *Plant to Generate Shaft Power and Process Heat*

This type of plant is exemplified by direct engine drive of a reciprocating or centrifugal compressor, with the recovery of jacket water heat. In the smaller size ranges, making sure of proper maintenance of the combined unit may pose a problem.

These plants can be considered as a supplement to any on-site power plant especially where electric power rates and demand charges are high.

Gas Turbine Plants

Since these plants are relatively new and their shaft power efficiency is much less than that of internal combustion engines, their potential application in commercial and institutional installations must be examined with great care. The architect should understand that the function of a prime mover is to produce as much electrical energy or shaft power as possible from a unit of fuel. The recovery of a large amount of waste heat is only meaningful if there is a sufficient need at all times for the rejected heat.

Electric Power from a Utility

Electric power must be considered in a proper evaluation of what service the utility company will furnish versus the quality of service the owner might provide with an on-site electric power plant. Architects should realize that energy plant economics is the special field of the power engineer, and that there are established, detailed and authoritative procedures which apply to the smaller installation as well as the larger power plant and central station.

The building consulting engineer must have a comprehensive knowledge of utility rate structures to evaluate proposals and counter proposals.

All-Electric Central Plant

Where the sole energy source for a building is electric power from a utility, a heat pump is indicated for central plant production of heating and cooling effect. It may be necessary to supplement the heat pump in winter by heat storage using low cost off-peak electric power, and possibly electric resistance heating if heat pump output does not match load requirements.

In northern climates, heat recovery from secondary sources such as lights and exhaust air is almost mandatory, even with limitations on glass and ventilation air.

The complexities of central heat pump plant design—with the exception of a few special types—up to 200 tons in size, require commensurate complexity in over-all plant and system design.

Frequently, where an all-electric building is proposed, unitary packages are chosen over a central plant to minimize design and operating problems.

Secondary Energy Plants

Plants included in this category are low-pressure steam, conventional hot water and chilled water, and high temperature hot water. Except for the latter, these plants are not complex, except in the selection of energy source or fuel.

High temperature hot water plants and distribution systems were common in Europe before World War II. They were developed to a highly satisfactory state after the usual period of trial and error adjustment. High temperature water was generated both from high pressure steam plants and by high temperature water boiler.

Shortly after World War II the Air Force made the logical decision to use high temperature water for heating and process use at their large, spread-out bases, because of minimum maintenance outside the district plant. Unfortunately, full benefits of European technology and engineering experience were not utilized, and Air Force supervisory and operating officers expressed dissatisfaction with early systems. Following installation the Air Force engineers instituted excellent operating and maintenance procedures for the installations, with a corresponding training program for personnel.

There is no question but that high temperature water is the optimum choice for many situations. A valid comparison between high temperature hot water and high pressure steam preferably requires a wide background in steam power plant, and district heating practice.

THREE PRECAST BEARING WALLS

Panel shapes and connections vary with job conditions

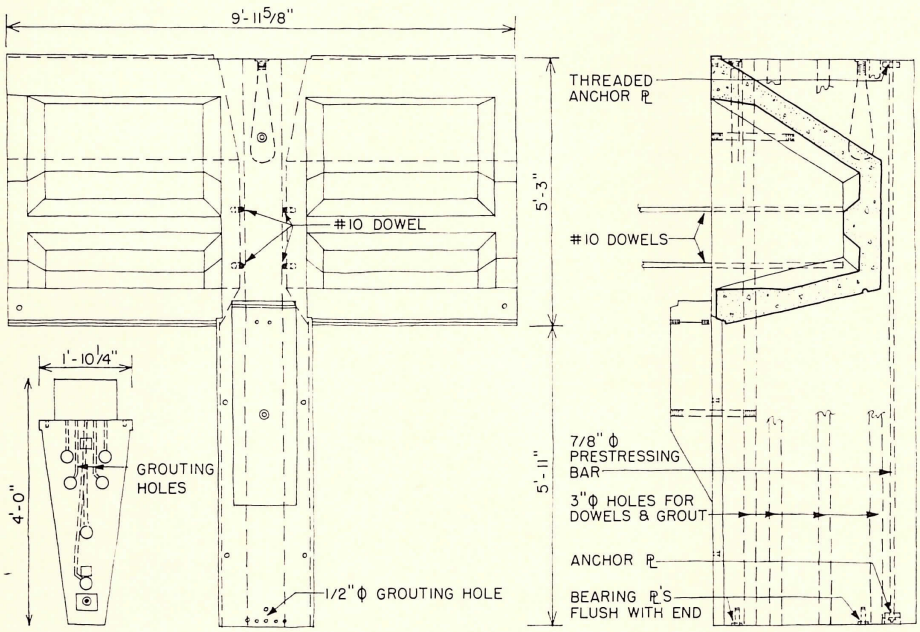
1. Dowels Join Heavily Loaded Columns

With the floor of the American Bible Society Headquarters building having a clear span of 50 ft, the columns carry a fairly high load (as much as 975 kips) necessitating special attention to column connections.

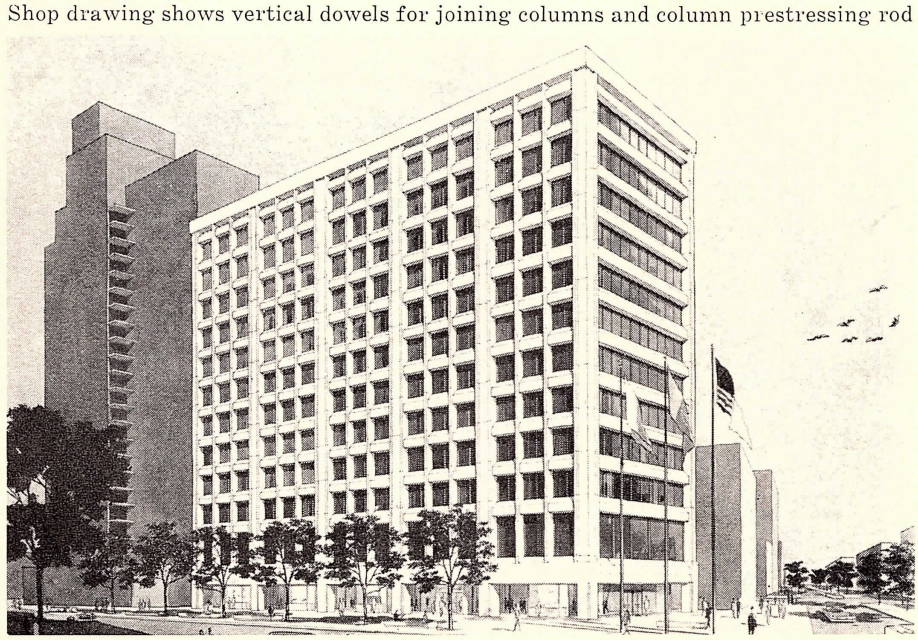
The precast load-bearing panels consist of a one-story high column and a spandrel. A typical panel is 10 ft wide by 11 ft 2 in. high. While the narrower columns are solid, the wider columns have a hollow section to provide space for pipes and ducts.

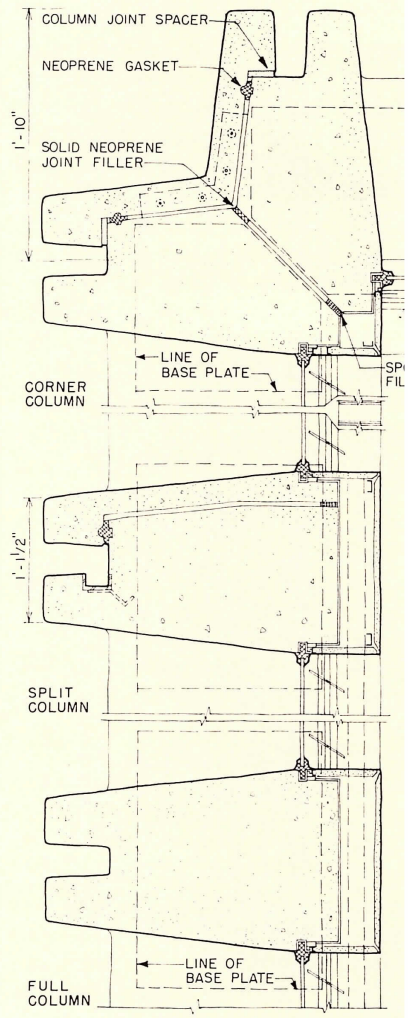
The connection method, which is novel for precast load-bearing panels, utilizes dowel reinforcement to tie one column to another. To insure structural continuity, the dowel holes are pressure grouted through small channels (provided in the columns) which are connected to the dowel holes.

The columns are prestressed near the front face to prevent tension cracks which otherwise might be caused by eccentric loading of the floor structure on the columns or occur during construction handling.

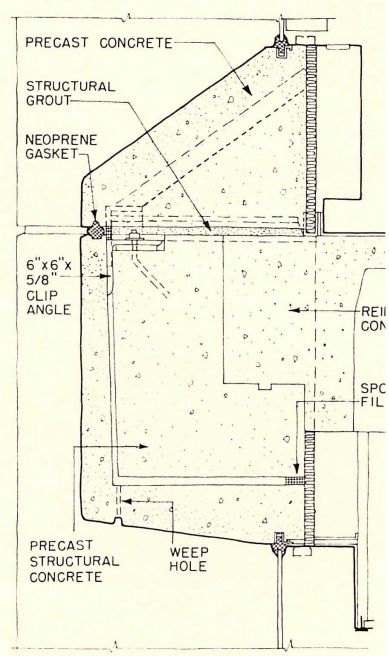


Shop drawing shows vertical dowels for joining columns and column prestressing rod

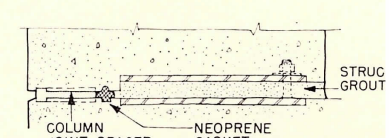




SECTION **A-A**



SECTION THRU PRECAST PANEL



SECTION THRU COLUMN AND BASE PLATE

. Three-Columned Panels

'he principal type of load-bearing recast panel for the Huntington 'rust Building in Columbus, Ohio, onsists of three columns, spandrel eam and sill section. The panels each 'eigh over 17 tons and measure 12 ft igh by 23 ft 9 in. wide. The junction etween panels is made by filling in 'ith a two-ton panel, 12 ft high by 4 t 9 in. wide.

The precast load-bearing facade is erminated at a second floor steel ransfer girder. This 8-ft-deep girder ransmits the vertical loads to 16 colmns set 12 ft back from the line of ıe facade.

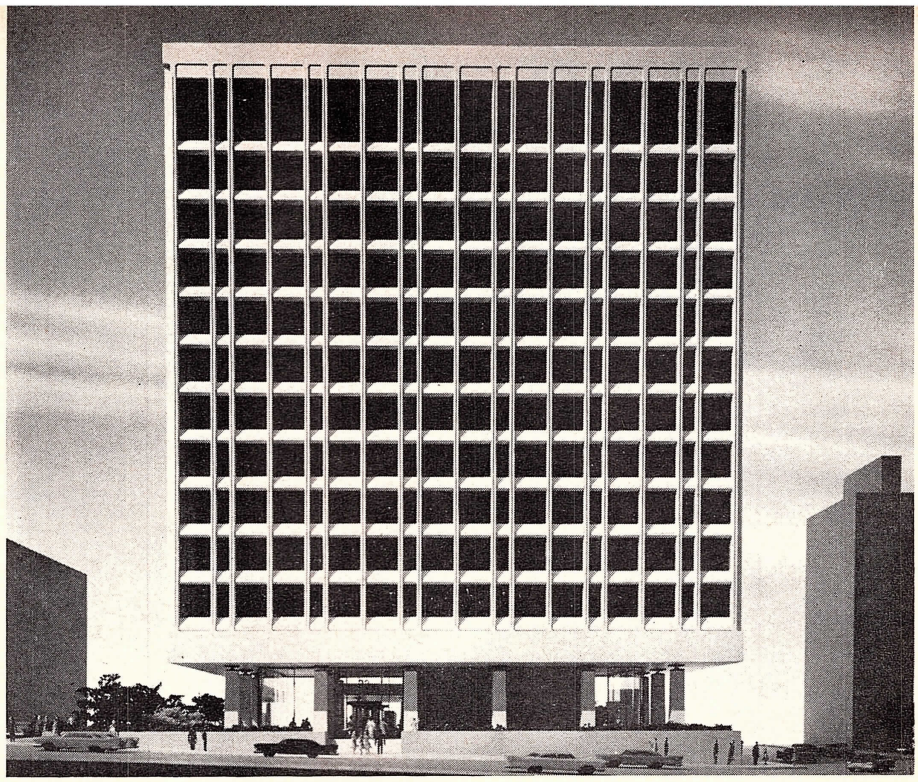
Setting one panel on top of another ompresses a neoprene gasket, sealıg the wall. Vertical neoprene gaseting between panels seals vertical oints.

Column connections are effected by olting base plates to cap plates, set n shims, with load transfer taking lace through grout. All columns are lentically reinforced, therefore makıg the panels interchangeable by oor or plan location.

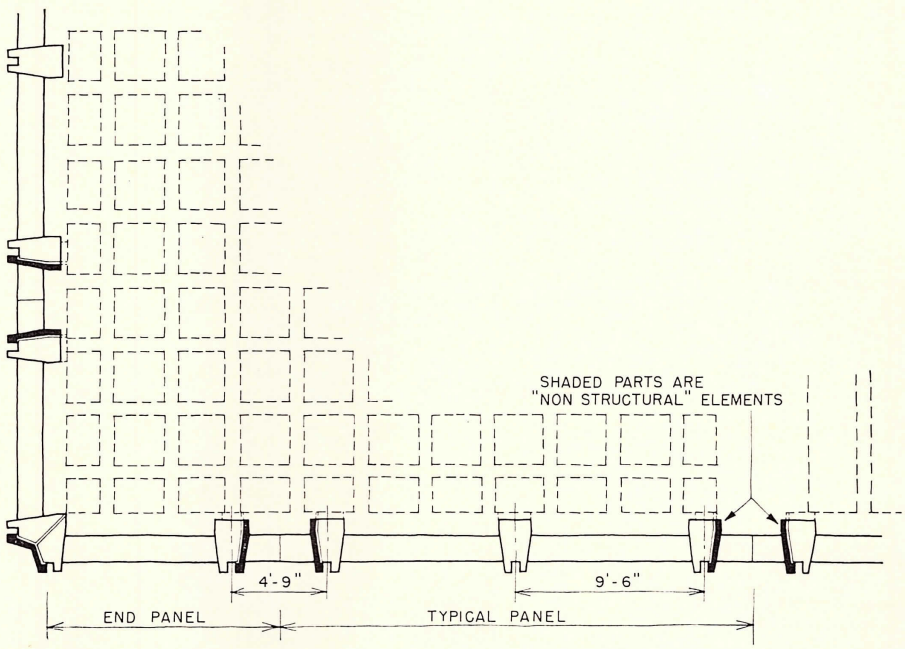
Wind forces are taken by shear 'alls in the centrally-located concrete ore.

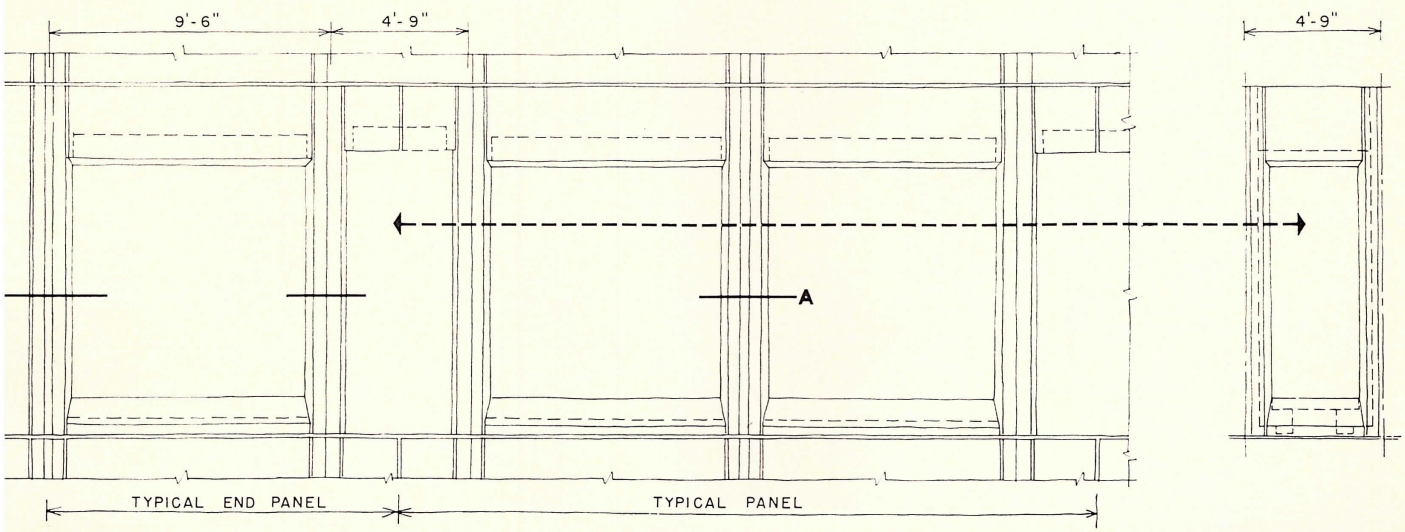
The finish of the precast panels s sandblasted to expose the light an-colored gravel.

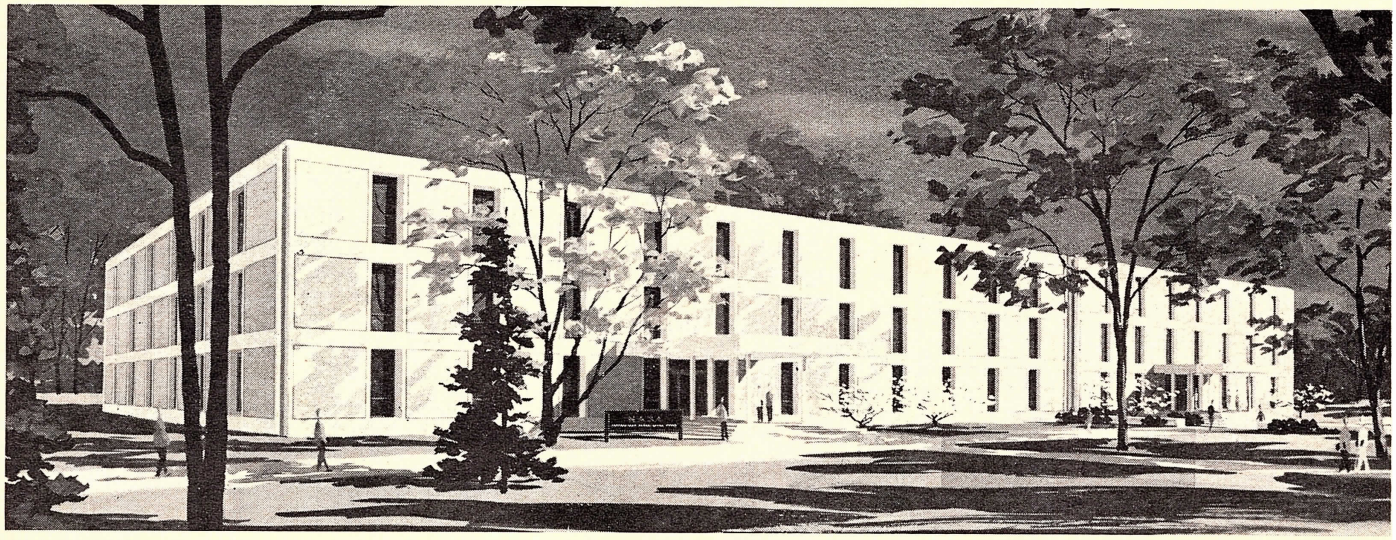
kidmore, Owings and Merrill were rchitects for the three buildings ı this article. Structural engineers 'ere Weiskopf & Pickworth



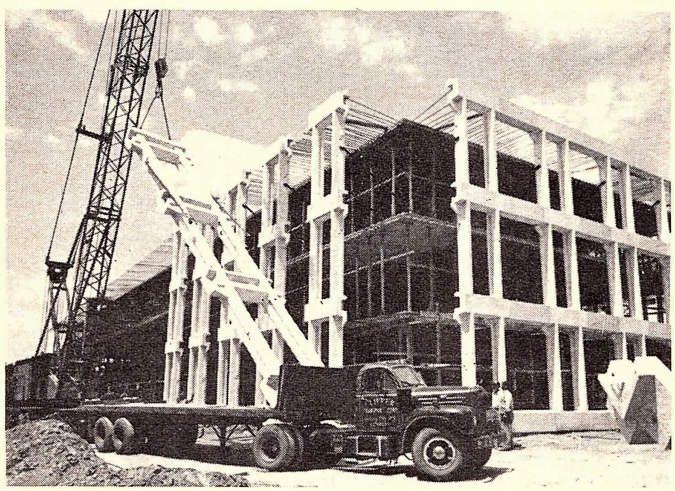
Load-bearing, three-columned panels are combined with non-structural filler panels. All columns are solid since dual duct system provides air from the interior core



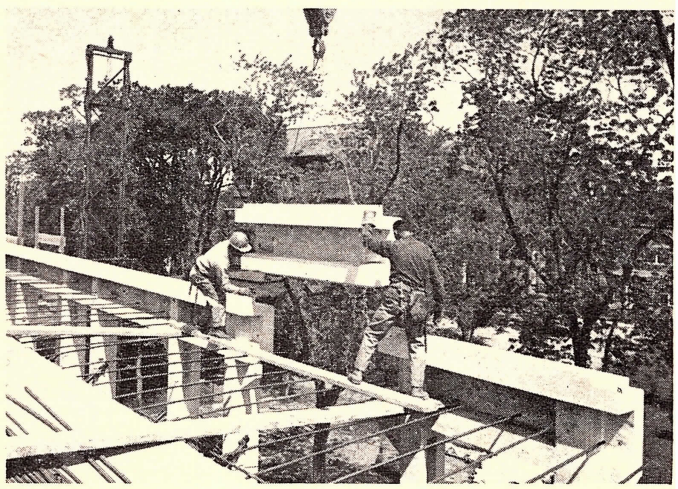




Materials Research Center and Engineering Science Research Building, Rensselaer Polytechnic Institute

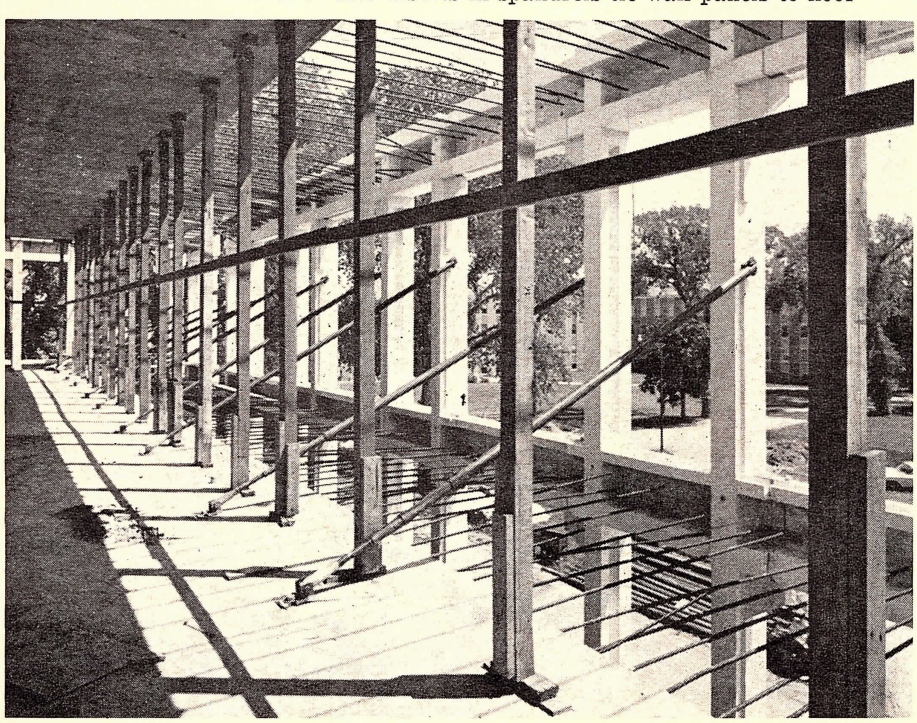


Panel size was suited to truck trailer dimensions



Spandrel units were set in place on top of column haunches

Threaded dowel rods screwed into inserts in spandrels tie wall panels to floor



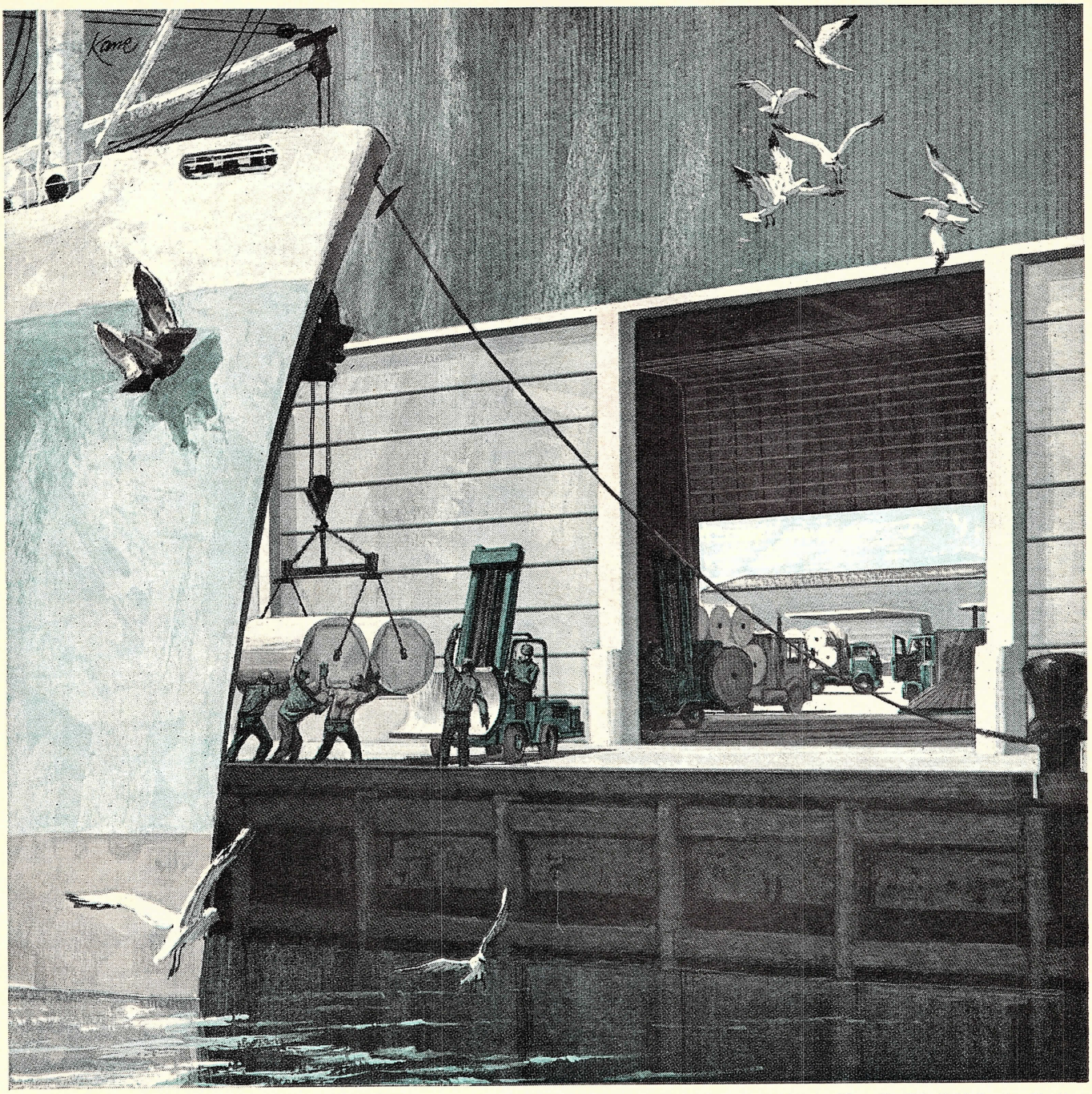
3. Three-Story Columns

The structure for this research laboratory building at Rensselaer Polytechnic Institute has lightweight concrete flat plate floors with interior poured-in-place concrete columns and precast concrete load-bearing facade.

Precast wall panels consist of two columns and spandrels three stories high with precast fill-in spandrels between panels. Size of panels was determined by architectural jointing requirements, transportation and erection considerations.

The exterior 9 ft of floor slabs and roof was poured after interior portion of framework was placed and precast panels erected. Panels carry up to 100 kips, with load being transferred to foundation walls, through continuous grouted joint.

Finish on precast members consists of exposed white quartz aggregate. Acid wash process was used to expose aggregate.



City of New York Newsprint Terminal. Architects: Tippetts-Abbett-McCarthy-Stratton

How The "OVERHEAD DOOR" takes the sting out of salt spray and waterfront winds

6 by land. 26 by sea. 32 durable doors in all—specially-fitted to defy the corrosive effects of salt spray whipped by high winds. A big order, but one exactingly met with The "OVERHEAD DOOR" for this City of New York newsprint terminal. And, while covering the waterfront may not be in your present plans, you're sure to sail into some stiff closure problems. When you do, our Architect Design Service can help you solve them.

There's no closure problem you can't control with The "OVERHEAD DOOR"

THE "OVERHEAD DOOR"
TRADE MARK
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OVERHEAD DOOR CORPORATION

General Offices and Manufacturing Division: Hartford City, Ind. Other Factories at: Dallas, Tex.; Salem, Ore.; Oxnard, Calif.; Cortland, N. Y.; Hillside, N. J.; Lewistown, Penna.; Nashua, N. H. In Canada: Oakville, Ontario.



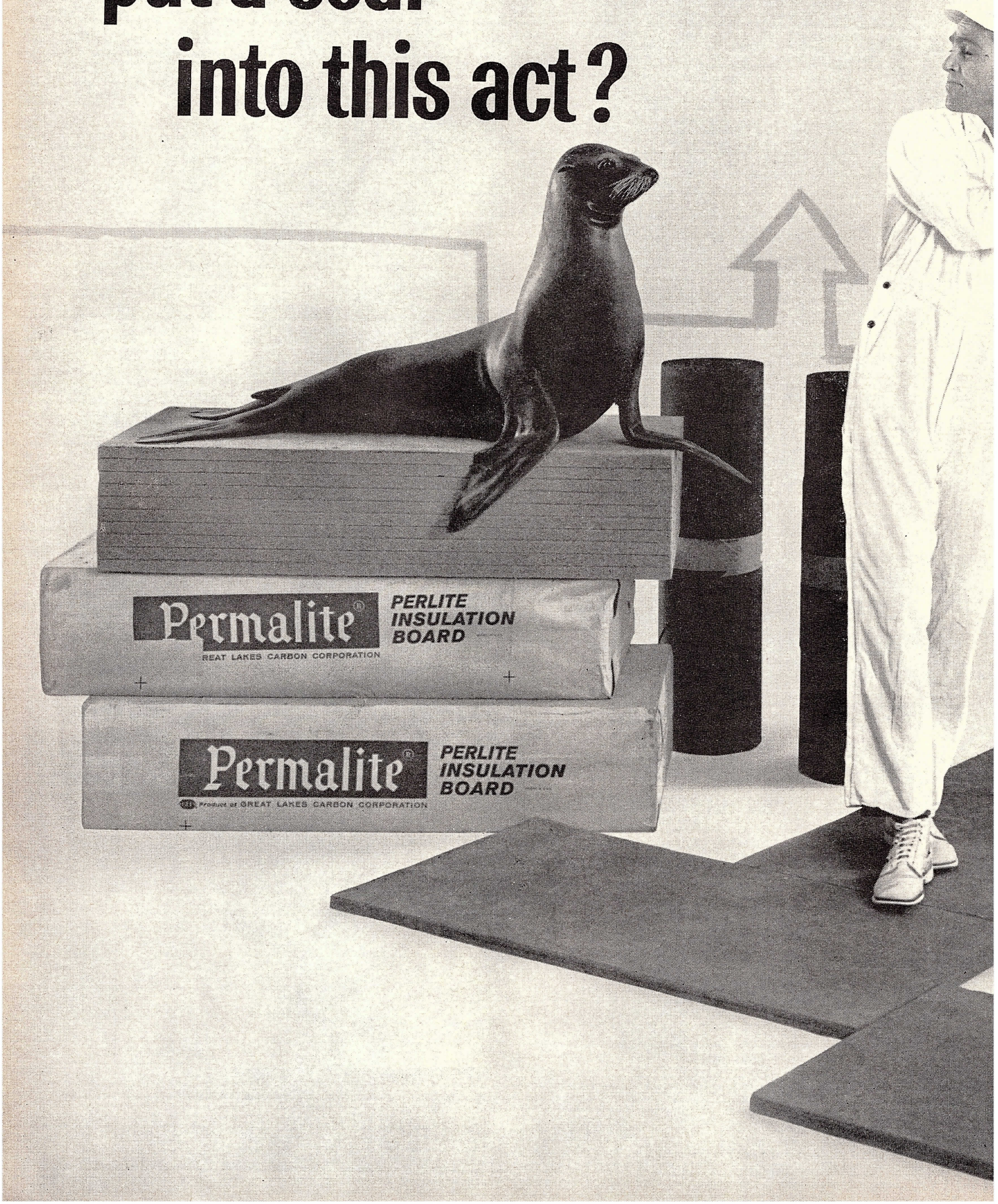
Here's how it was done...

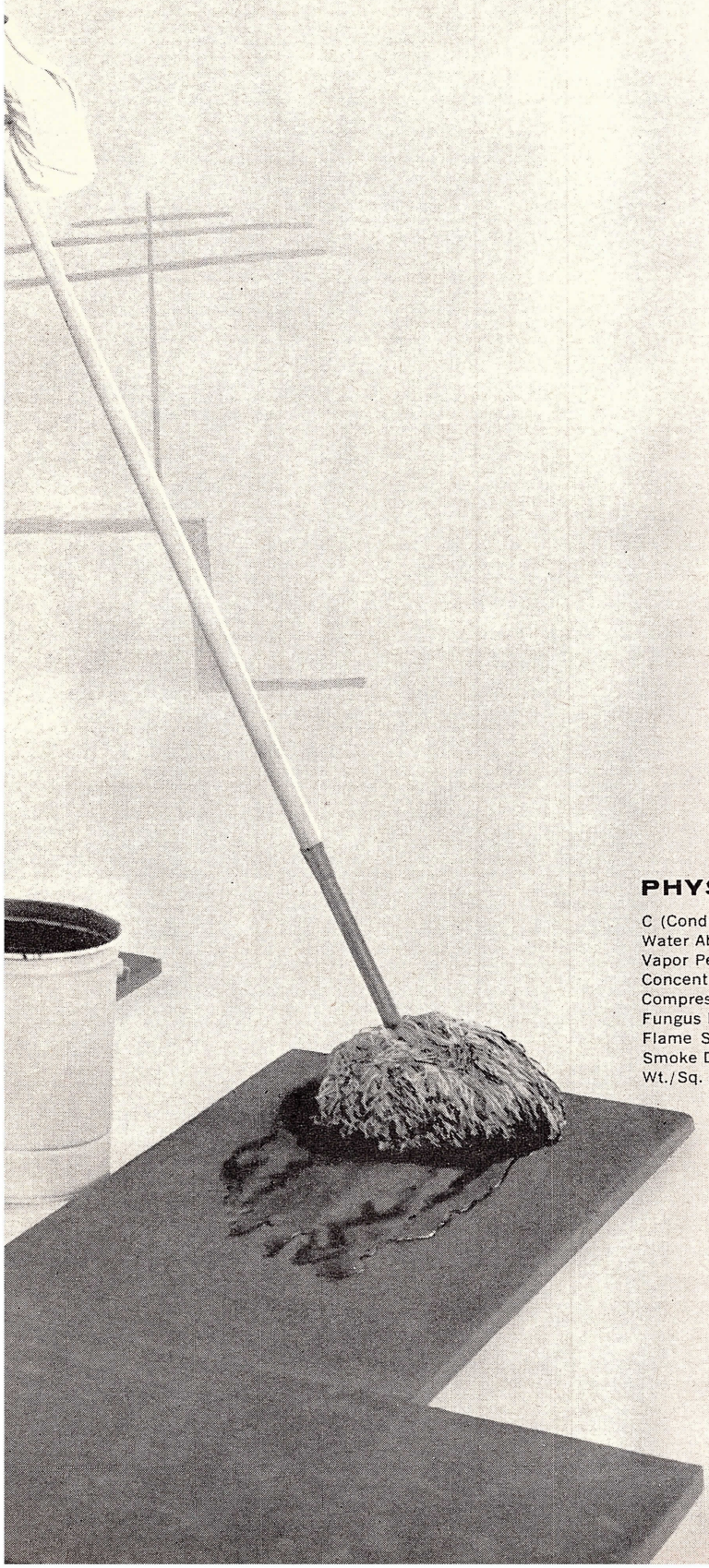
Waterfront winds and salt spray emphasized the need for special protective measures in this huge installation. These requirements were successfully met by The "OVERHEAD DOOR" in 16-gauge steel. Wind penetration completely sealed out with MIRACLE WEDGE®—vertical tracks that incline away from jambs at a pitch of ¼" per door section to give a snug, weather-tight closure. Corrosion damage caused by salt spray minimized through use of Salt Spray Steel®—tracks and hardware coated with 1¾ oz. bright zinc per square foot.

For more data, circle 112 on Inquiry Card

For more data, circle 113 on Inquiry Card ➔

Who put a seal into this act?





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How do you *improve* an insulation board that's already lightest, toughest, most moisture-resistant, non-combustible, permanent, most efficient?

This way: Increase the bonding power with an integrally formed self-surface that grips asphalt like glue. Forms solid uniform bond to roof membrane. We call it Permalite Sealskin.

Adhere to it on your next job. Samples on request from Building Products Dept., Great Lakes Carbon Corporation, 333 North Michigan Ave., Chicago, Illinois. Permalite Sealskin or Permalite Standard rigid roof insulation for UL constructions 1 & 2 and Factory Mutual Class 1 metal deck construction.

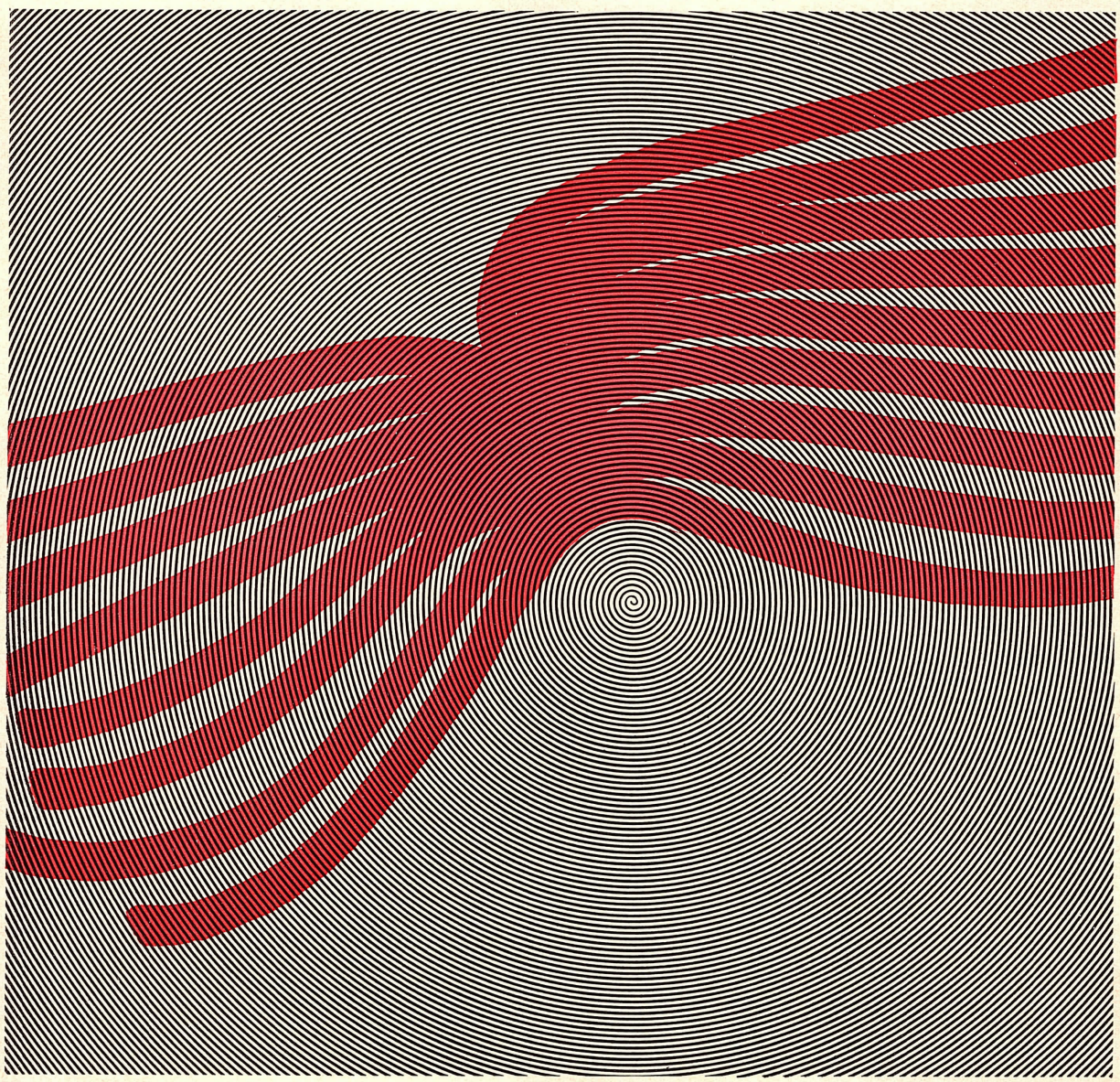
PHYSICAL DATA: Permalite Rigid Insulation Board

C (Conductance Value) 1" Nominal Thickness	0.36
Water Absorption (% by Volume)	1.5 @ 2 Hrs. Total Immersion (No Capillarity)
Vapor Permeability	15 Perms @ 73° F. and 51% Relative Humidity
Concentration Load Indentation	1/16" @ 77 lbs.
Compression Resistance	185 PSI (50% Consolidation)
Fungus Resistance	Complete
Flame Spread	25 (Non-combustible)
Smoke Developed	0–5
Wt./Sq. Ft./1" Thick	0.8 lbs. Approx.

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Since 1884

For more data, circle 114 on Inquiry Card

POTENTIALITIES OF ROLL-FORMED METAL SHAPES

By *R. A. Biggs*

While roll-forming of metals is neither novel nor particularly difficult, surprisingly little is known about this process in the architectural field. Roll-forming became prominent only when the automobile industry demanded faster methods for making metal parts. Roll-formed metals then began to be used in parts for railway cars, trailer trucks, airplanes and household appliances, and later on for a few simple construction applications such as gutters, downspouts and structural shapes.

In the typical roll-forming setup, metal in coiled-strip form is fed into the machine, where it is transformed gradually as it passes through the contoured "matching sets" of rolls. Bending *only* takes place; the metal gauge remains substantially the same. The number of stands (pairs of rolls) may be as few as three or four for simple shapes. Any of the ductile nonferrous and ferrous metals and alloys that can be formed readily by other mechanical processes may be roll-formed. Brass, copper, aluminum, steel and stainless steel make up the bulk of roll-formed products. Most roll-forming operations are in the range of between 0.20 and 0.125 in. thick and below 24 in. in width of entering coil stock. Stainless steel alloys, which are denser and several times stronger than ordinary carbon steels, have been roll-formed in thicknesses from 0.006 to 0.30 in.

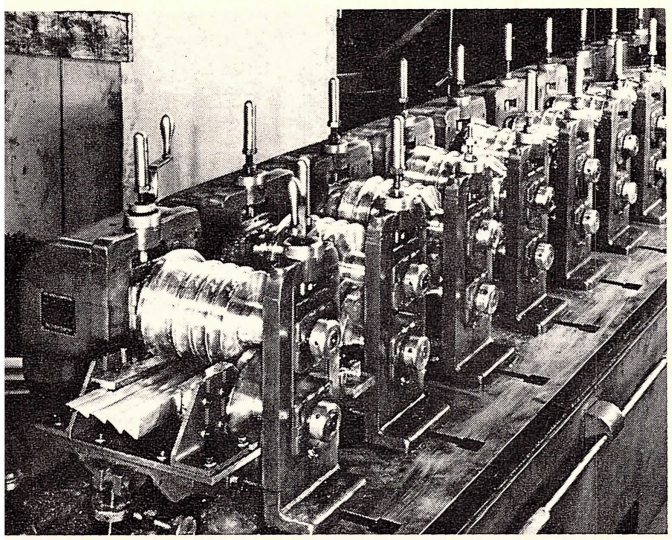
R. A. Biggs is Manager of Construction Market Development, Union Carbide Corporation

Advantages of Roll-Forming

Roll-forming of metal in light gauges permits:

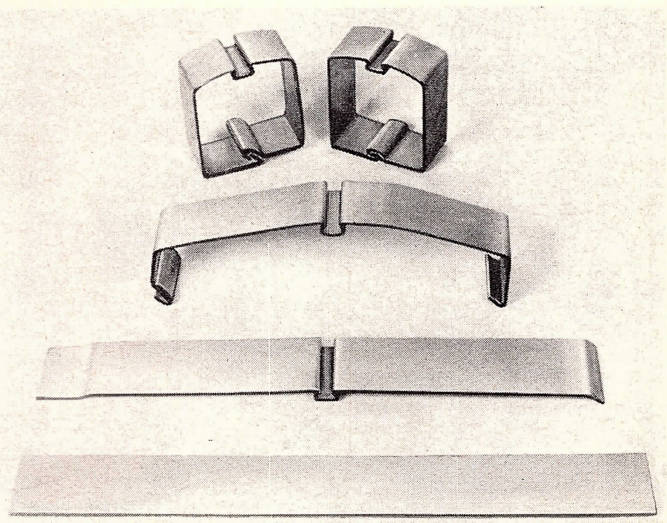
1. Maximum utilization of the strength in the metal—by creating sections to serve the particular function plus placement of elements to accept the anticipated loads.
2. More preciseness in the production-forming operation, resulting in better duplication of section, sharp corners and straighter elements.
3. Maintenance of fine surface finishes during roll-forming operations. Roll-forming can be done on most flat-rolled material without injury to the finish. Painted and electroplated metals can be formed without damage to the coating.
4. Other operations (concurrent with roll-forming), such as notching, stamping, embossing, spot- and seam-welding, bending, and cutting to specific lengths, efficiently performed without further handling.
5. Feeding two different materials into the machine at the same time and combining them into a single element. Wood, fabric, cord, felt, metal rod, wire or tubing can be incorporated into a roll-formed shape. The manufacture of auto window guides, by forming stainless steel strip around felt weather-stripping, is typical, as is the combining of a fabric and galvanized strip to form a flexible and sound-insulating coupling for air-conditioning ducts. It is possible to form multiple sections simultaneously by feeding a single strip of carbon steel and two separate strips of stainless steel into a roll-forming machine; after forming, the section is slit to create two stainless-steel-covered sections for automobile radiator grilles.
6. Very rapid production (40 to 300 ft per minute, depending upon gauge, section and other factors), once the rolling mill has been "set up."

In cold roll-forming a flat strip of metal passes through a series of rolls and is progressively formed into a desired shape



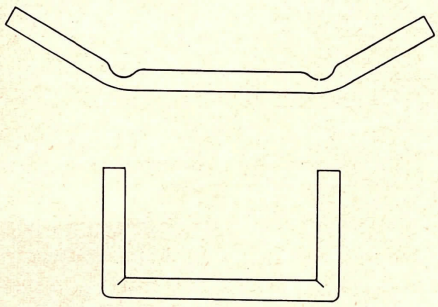
The Yoder Company

Four of the more than 15 steps in the roll-forming of one of the seven shapes required for a stainless steel entrance door

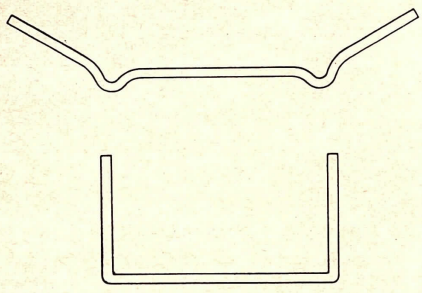


The Alumiline Corporation

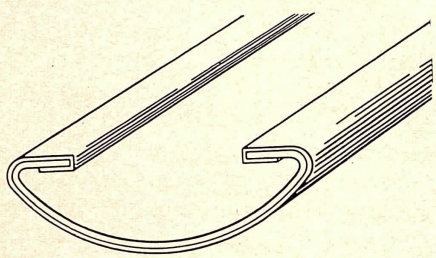
SPECIAL TECHNIQUES USED IN FORMING ROLLED SHAPES



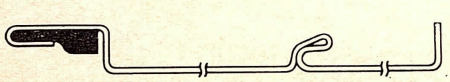
Grooves made in stock facilitate the forming of sharp corners



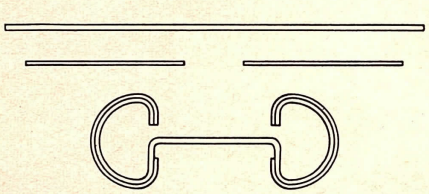
On thin stock, sharp corners are usually made by first forming beads



Bright molding is made by forming stainless strip over heavier carbon steel



Non-metallic gasket or seal is locked into place as metal section is formed



Composite formed from one carbon steel strip and two stainless strips can be cut to yield two identical sections

The shapes that are "ideal" for roll-forming are those that are symmetrical about a vertical centerline, along with parts that require the same amount of bending on each side of the centerline. Thin, wide parts (unformed areas over 5 in. wide) may show waviness and should be avoided. Single-thickness edges should also be avoided or include a flange, hem or rib at, or near, the edge.

Limitations

Among the reasons why roll-forming has not been used extensively in construction applications are:

1. Rather high "tooling" and engineering expense for any special section or complicated design. Such costs frequently run into thousands of dollars compared to hundreds, perhaps, for extrusion dies.
2. "Setup" expense of a roll-forming machine, which may involve up to 30 sets of matching rolls.
3. Necessity for thousands of lineal feet of a section to "justify" the foregoing expenses, plus the inventory costs of this output until used.
4. No central source of data about the particular sections which might be available without "tooling charge" or other "cost-cutting" guidelines for prospective users.

During the last 20 years, designers have found that complicated sections of nonferrous metals could be extruded easily. Costs were nominal; even relatively "short runs" were economical. Included among the proliferation of products are windows, doors, store fronts, fascia, curtain walls, solar screens and partition parts, to mention just a few. Metal extrusions were applicable to custom as well as standard design.

During the early 1950's, extruding was the prime method used in manufacturing parts for many architecturally specified building products. Since then, however, other means of meeting the construction industry's needs have entered the market; roll-formed metal elements (particularly in stainless steel) have become significant in applications such as windows, doors, ceiling systems, fascia, partitions and curtain walls.

In recognition of the expanding future use of structural members formed from light-gauge strip, the American Iron and Steel Institute initiated a research program which resulted in the 1956 Edition of the Specification for the Design of Ligh Gauge Cold Formed Steel Structura Members. Research is continuing t bring forth similar data with respec to the stainless steels.

Two steel producers (Republic an U.S. Steel) have each developed wir dows using roll-formed stainless ste for both sash and frame members double-hung, single-hung, vertically pivoted, hopper-type and sliding-typ windows are offered in monumenta as well as residential types of wir dows.

Two door and entrance fabricator have independently decided to de velop products made from roll-forme stainless steel sections. By "breal throughs" in metal fabrication an custom-job assembly techniques, Th Alumiline Corporation has develope a storefront and entrance syste which offers the architectural de signer a variety of arrangements i details and dimensions while provic ing a dense metal surface that wi take the "kicks and knocks" expecte in this application.

Carmel Steel Products has pr duced a competitively-priced stainles steel sliding glass door through th use of roll-formed sections for stile frame and sill.

Back in February 1960, ARCHITECTURAL RECORD reported on th ceiling system designed by Skidmor Owings and Merrill for the ne Union Carbide headquarters buildin in New York City. The competitive ness of roll-formed stainless steel fo ceiling runners in relation to an ex truded section points up the fact tha custom-design requirements can b met with roll-formed elements whe the volume of lineal feet to be pr duced can bear the burden of eng neering, tooling and setup time.

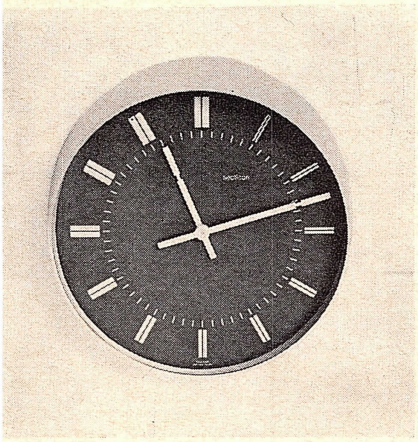
The partition batten elements i this same project, produced by Th Hauserman Company of Clevelan were also roll-formed stainless stee and no premium was paid for thi better-qualified material.

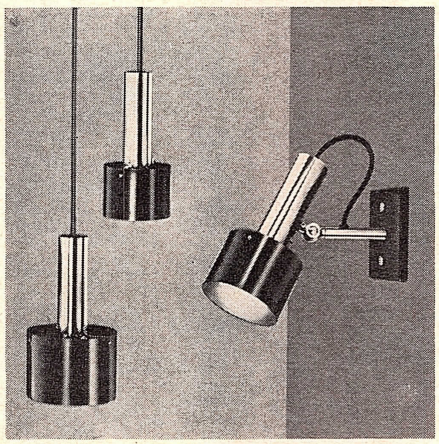
How should an architectural de signer proceed in order to take ad vantage of the benefits of roll-form ing? Probably he should ask himsel such questions as:

1. *Is the required shape for the par simple or must it have many "twist and turns and crevices" as drawn i section?* If the required shape is an of a multitude of simple shapes, suc as channels (both equal and unequa

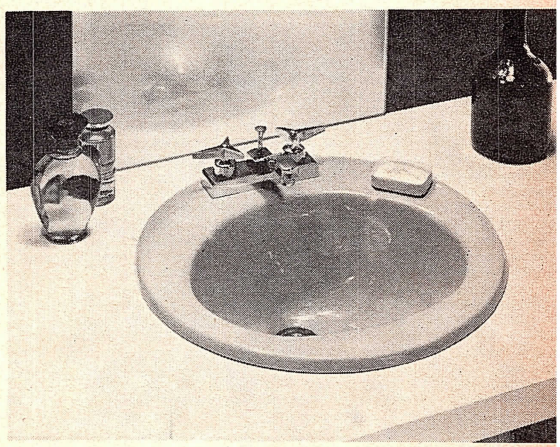
continued on page 23

For more information circle selected item numbers on Readers Service Inquiry Card, Pages 311–312



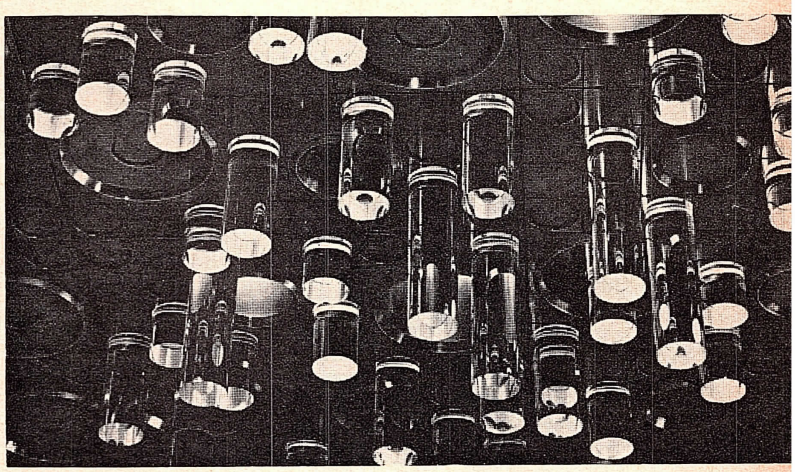


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5

. BATTERY OPERATED WALL CLOCK

Jew designs in *Secticon* battery op- rated wall clocks feature a down- vard tilt of the dial for easy view- ng, graduated dial markings to sig- ıify the progression of time, and)ff-center positioning of the trade ıame. The *M2* model for larger areas, llustrated, has a satin finish alumi- ıum case with a black or red dial.)iameter of the case is 13 in. *Smith Metal Arts Co., Inc., 1721 Elmwood Ave., Buffalo 7, N.Y.*

CIRCLE 300 ON INQUIRY CARD

2. SPOT LIGHTS FROM EUROPE

Designed by Danish architect, Fred- rik Fogh, for *Par 38* and *R-30* reflec- or type lamps, the *Milano* spot has ıow been introduced into this coun- ry. The lamp shield and canopy is)lack anodized aluminum; socket en- closures and tubing are satin chrome. Pendant brackets and wall units are available. *Prescolite Mfg. Corp., 1251 Doolittle Dr., San Leandro, Calif.*

CIRCLE 301 ON INQUIRY CARD

3. CIRCULAR CHINA LAVATORY

The *Brookline* vitreous china circular lavatory is 18 in. in diameter and fits easily into a 21 in. counter top. Designed for single, twin, or multiple installations in homes or commercial establishments, the unit is provided with integral soap dishes, a concealed front overflow, and an anti-splash rim. *Kohler Co., Kohler, Wis.*

CIRCLE 302 ON INQUIRY CARD

4. MODULAR DESK

The steno modular desk, *Model L201,* is available with tops in a variety of woods and plastic wood grains in sizes from 30 in. by 60 in., to 36 in., by 72 in. Storage is conveniently arranged for papers and literature of different sizes. *Robert John Co., Dept. K, 821, North Second St., Philadelphia, Pa.*

CIRCLE 303 ON INQUIRY CARD

5. VERSATILE LIGHTED CEILING SYSTEM

The Celestial lighted ceiling, which can fit any area or shape, consists of a die-cast aluminum frame, polished acrylic rods and low brightness down lights. The 1 ft. by 2 ft. ceiling panels are available in a number of finishes. *Torsion Ease Hinges* are employed to eliminate the need for removal of panels after installation. *Integrated Ceilings Inc., 11766 West Pico Blvd., Los Angeles, Calif.*

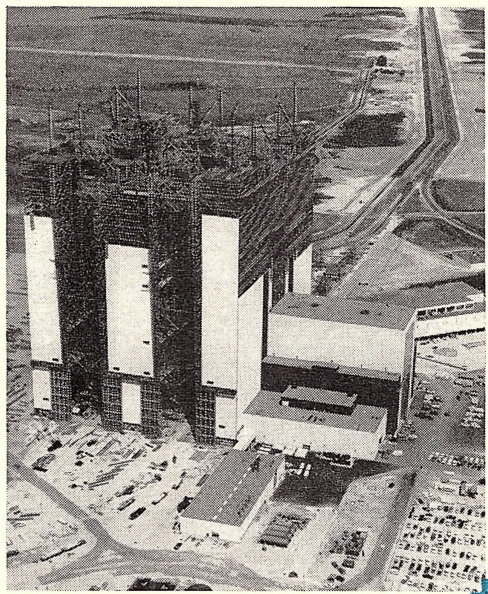
CIRCLE 304 ON INQUIRY CARD

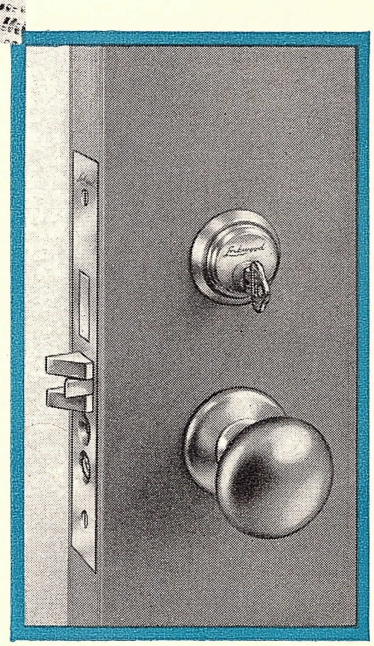
more products on page 240

LOCKWOOD

TO LOCK UP "MOON PORT"

First step to the stars





Rising out of the dunes of Florida's Merritt Island is the skeleton of what will soon be the largest building in the world—N.A.S.A.'s Vertical Assembly Building.

Over 57,000 tons of structural steel alone were used to form the framework and when complete the building will reach 507 feet into the air and measure 709 feet in length and 513 feet in width.

It will be here that a new era in history will be written as giant Saturn V launch vehicles will be assembled prior to manned voyages to the moon.

As with all N.A.S.A. projects the door hardware had to satisfy two rigid standards—SECURITY and DEPENDABILITY. Lockwood's Heavy Duty Mortise locksets and Ball Bearing Door Closers came up with the right answers for both.

When you're looking for security and dependability in hardware, look to Lockwood. We've found our place in the stars.



BUILDING PHOTO COURTESY U. S. STEEL

LOCKWOOD

LOCKWOOD HARDWARE MFG. CO.

Fitchburg, Massachusetts

Division of INDEPENDENT LOCK CO. ILCO

For more data, circle 115 on Inquiry Card

For more information circle selected item numbers on Readers Inquiry Card, pages 311-312

LYWOOD SIDINGS

24-page illustrated guide shows ow plywood sidings have been used give different effects in a wide va- iety of buildings. Detail drawings re included to show application of ne siding directly over wall studs or ver sheathing materials. Window nd door details for application to uds are also included. Information given on the insulation value of all sections with plywood sidings as ell as on strength and durability. folder is inserted in the booklet iving the names of manufacturers f each plywood siding style. The dif- erent styles and surfaces are illus- rated by means of photographs. *merican Plywood Association, Ta- oma, Wash. 98401**

CIRCLE 400 ON INQUIRY CARD

OLLING DOORS AND GRILLES

series of brochures give details of he company's range of rolling rilles, *Rol-Top* doors, steel rolling re doors, power operators for the olling doors and rolling counter hutters. Each brochure contains ap- lication photos, specifications, di- ensions and detail drawings and hotos. *The Kinnear Manufacturing ompany, Columbus, Ohio**

CIRCLE 401 ON INQUIRY CARD

URNITURE DETAILS FOR TUDENT HOUSING

work saver folder for architects oncerned with student housing has een issued by this company. Each iece of Simmons *Dorm Line* furni- ure is presented, accurately scaled nd ready to be traced into plans. *immons Company, Merchandise Mart Plaza, Chicago 54, Ill.**

CIRCLE 402 ON INQUIRY CARD

IBRARY FURNITURE

comprehensive line of library fur- iture is presented in a 98-page cat- log, No. N-98. Shelving, reading nd conference tables, charge desks, ard catalog cabinets and many other ssential items are shown. *Frederic Weinberg Company, 145 W. Columbia ve., Philadelphia, Pa. 19122*

CIRCLE 403 ON INQUIRY CARD

RIGID URETHANE FOAM

The properties, advantages and applications of rigid urethane foam are discussed in a new 30-page booklet. One section is devoted to five specific advantages of urethane foam—insulating efficiency, light weight structural support, strong adhesive qualities, buoyancy and one-step fabrication. Another section covers rigid urethane foam production and the four methods of application—slab stock, pour-in-place moulding, frothing and spraying. *Union Carbide Chemicals Div., 30-20 Thomson Ave., Long Island City, New York 11101*

CIRCLE 404 ON INQUIRY CARD

CENTRIFUGAL BOILER FEED PUMPS

A complete line of Multi-stage, centrifugal boiler feed pumps is described in a revised 14-page, two-color brochure, Bulletin 830-C. The *UltraDyne* pump, whose main features are 2-foot NPSH characteristic and high mechanical efficiency, is described by means of text, photos and a cross-section drawing. In addition, the brochure contains a selection chart, specifications and performance and dimensional data for the 43 available models. *Schaub Engineering Co., 5300 Belmont Rd., Downers Grove, Ill.*

CIRCLE 405 ON INQUIRY CARD

MOVABLE PARTITIONS

Four different movable partition systems are illustrated and described in a 16-page catalog. Those described are: the *Penciline* all-steel system; the *Mark II*, a vinyl-covered gypsum board system; the *Penwall* and *Kwik-Zip* gypsum panel systems. *Penn Metal Company Inc., Parkersburg, W. Va.**

CIRCLE 406 ON INQUIRY CARD

STORAGE WATER HEATERS

P-K type storage water heaters are described in a new catalog. Capacities, drawings, conversion and rating tables, weights and dimensions are included. *Patterson-Kelley Co., Inc., East Stroudsberg, Pa.*

CIRCLE 407 ON INQUIRY CARD

PREFABRICATED WOOD SHELVING

Available in 48 combinations of depth, width and height, *Lundia* storage shelving is designed for use in offices, stores, hospitals, banks, factories and other large buildings. An illustrated catalog gives photos of a number of different types of installation and gives details of how the prefabricated units may be quickly erected and adjusted for specific uses. Specifications are given for all types of shelving. *Lundia, Swain and Myers Inc., P.O. Box 309, Decatur, Ill.**

CIRCLE 408 ON INQUIRY CARD

QUARTZ THEATER LIGHTING

"Theatrical Lighting for Quartz" is a new bulletin which describes the company's line of theater lighting equipment for quartz-halogen lamps. The bulletin shows sketches of the different fixtures with recommended uses, dimensions and other product data. *Kliegl Bros., 32-32 48th Ave., Long Island City, N.Y. 11101*

CIRCLE 409 ON INQUIRY CARD

TEST CODE FOR HOT WATER HEATERS

A new interim standard test code for hot water unit heaters is contained in a new 44-page bulletin, No. 22. The bulletin details test set-up and equipment, calculations and evaluation of test results, and the necessary data for conducting tests. *Air Moving and Conditioning Association, 205 West Touhy Ave., Park Ridge, Ill.*

CIRCLE 410 ON INQUIRY CARD

THERMAL CONTROLS FOR HYDRONIC AIR CONDITIONING

A 36-page technical information manual gives comprehensive information on how to select and specify proper terminal control systems and devices for hydronic air-conditioning systems. *American Standard Controls Div., 5900 Trumbull Ave., Detroit, Mich.**

CIRCLE 411 ON INQUIRY CARD

* *Additional product information in Sweet's Architectural File*

more literature on page 282



This trim beauty

Stainless Steel



stops 'em cold

Steel vs. Steal . . . and the challenger lost. This is the door to a restaurant in one of New York's most successful chains—Chock Full O'Nuts. You'd never know that would-be burglars tried to jimmy it a few days before these pictures were taken. The door is stainless steel. The burglars didn't get through because of the toughness of this fine architectural metal. The minor damage was repaired the next day without removing the door. Today it's as good as new.

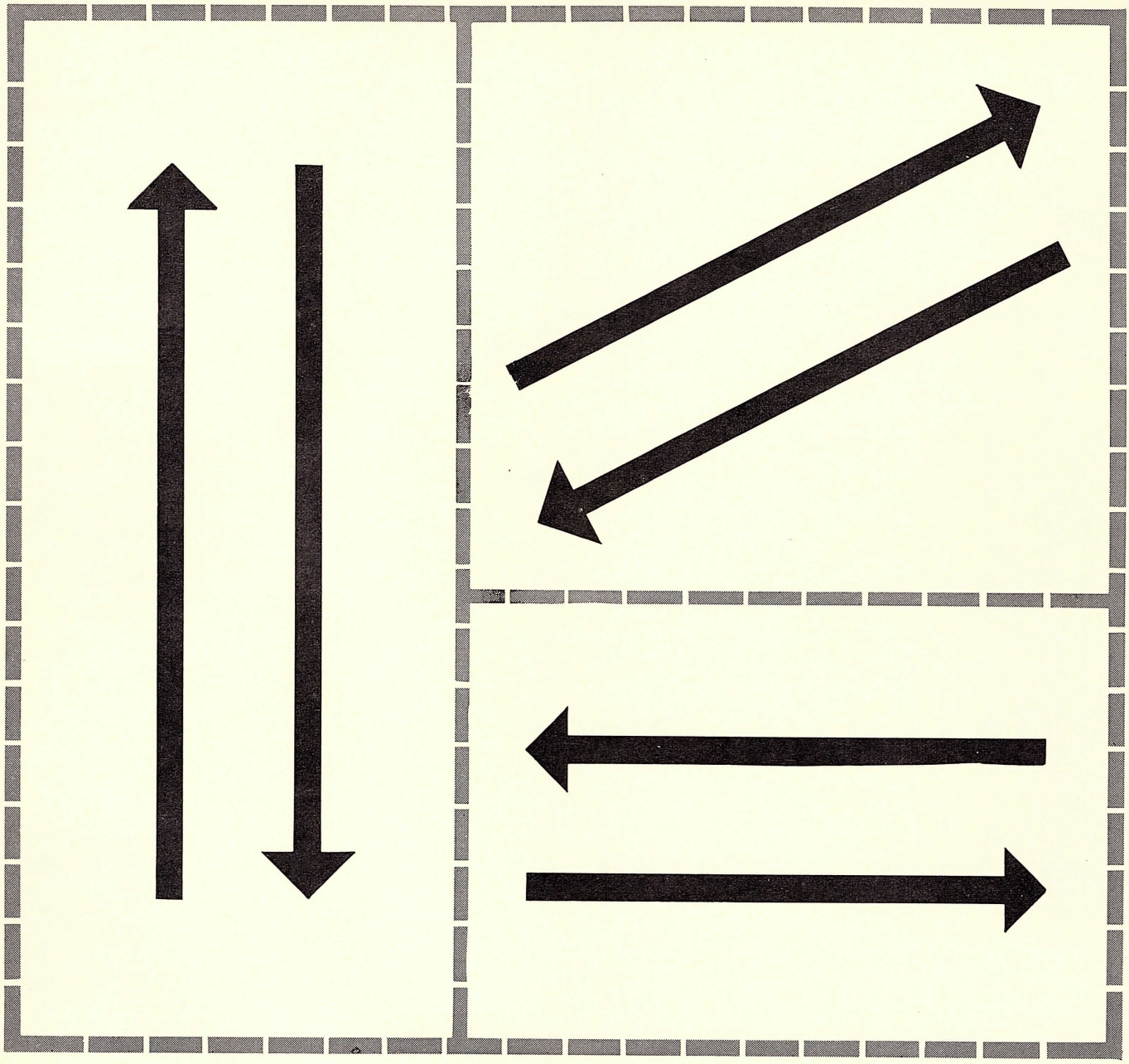
The problem of good design and maximum safety has always been a challenge to owners and designers of entrances for commercial and monumental buildings. This restaurant found the practical answer in low-cost stainless steel doors and frames, manufactured by The Alumiline Corporation, Pawtucket, R. I., from stainless steel provided by Jones & Laughlin Steel Corporation.

If you have a design idea that involves stainless doors and entrances, contact The Alumiline Corporation. For further information concerning stainless steel, let us refer you to our Architectural Services.

Jones & Laughlin Steel Corporation

STAINLESS Stainless and Strip Division • Detroit 48234

For more data, circle 116 on Inquiry Card



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MONTGOMERY
Dependable ELEVATORS

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offices in 120 principal cities

For more data, circle 117 on Inquiry Card

usic by Muzak® helps make shopping an exciting experience at Tacoma's beautiful new Bon Marche



e newest, largest and most modern department store in Tacoma
d all Southwest Washington, for that matter) opened its doors
s past August.

Built at a cost of almost 6 million dollars, the four-story Bon
rche contains 256,000 square feet of selling and service space.
d comfort and convenience as well as beauty are stressed
oughout this elegant, yet functional building.

That's why Music by Muzak is an integral part of this store.
zak programming is used in the main dining room, coffee
p, cocktail lounge, employees dining area, warehouse — and
n the parking lot.

Scientifically planned Muzak programs enhance good architecture with an atmosphere that pleases employees and customers alike.

In the world's finest buildings, atmosphere Music by Muzak has demonstrated a unique ability to mask noise, replace cold silence and complement smart architectural design and decor.

The Muzak sound system is a versatile communications medium for music, paging, public address and signalling.

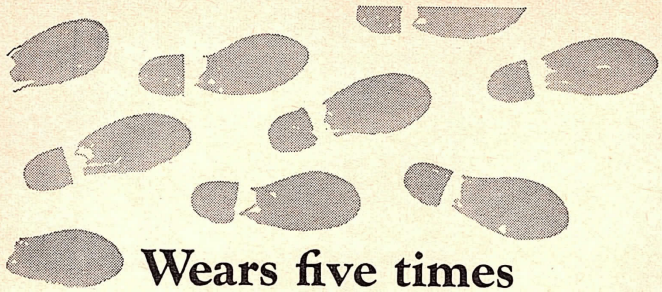
Save time and expense, specify
Music by Muzak
in planning stages.

music by Muzak®

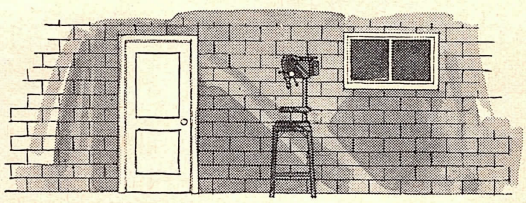
MUZAK A Division of Wrather Corporation, 229 Park Avenue South, New York, N. Y. 10003

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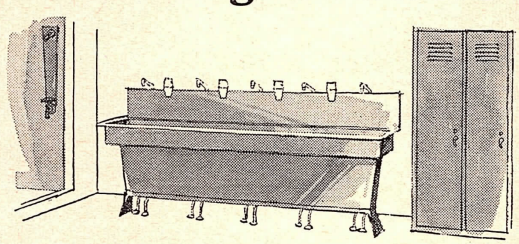
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Wears five times longer than paint



beautiful tile-like finish, wide range of colors



waterproof, rustproof, stain-resistant, sanitary



Don't paint it. Mira-Plate it with this miracle epoxy coating.

Super polyamide epoxy coating gives long term savings in maintenance time and money—far outlasts any conventional finish. Mira-Plate metal, concrete, brick, wood, plaster, tile, etc. Fire-resistant. Non-toxic. Defies wear, abrasion, water, rust, fumes, solvents, etc. Wide range of colors. Also available in special acid-resistant formulation.

O'BRIEN PAINTS
TOP QUALITY SINCE 1875

O'Brien Corp., Dept. AR-5
South Bend, Indiana 46621

Send me color samples and information on how O'Brien's Mira-Plate will give me long term savings in maintenance time and money.

Name_____

Position or Title_____

Address_____

City_____ State_____ Zip Code_____

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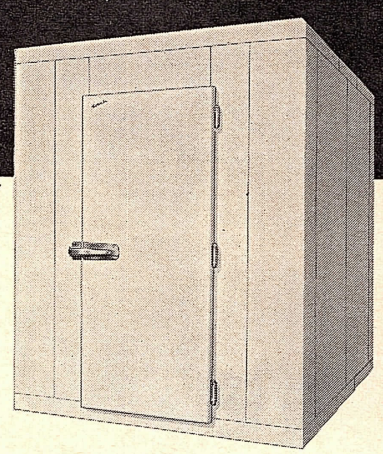
ANY SIZE

TO FIT ANY SPACE

NORRIS WALK-IN COOLERS, FREEZERS, COMBINATIONS

LIGHT WEIGHT

as low as 4½ lbs. per sq. ft. —reduces freight costs



Any size . . . to fit any space . . . describes Norris walk-in coolers, freezers, and cooler-freezer combinations, for Norris walk-ins give you complete installation flexibility. Available with or without floors, Norris walk-ins are pre-fabricated in two- and three-foot wall sections, four-foot door sections (7½' high), and can be set up in one-foot increments in any size—in almost any space —in new or existing buildings. A light hammer is the only tool necessary.

The modular panels of Norris walk-ins are all-metal, with no wood to absorb moisture, and extremely lightweight. Standard exteriors are bonderized steel finished in white baked enamel, interiors are 22-gauge metal, with custom exteriors or interiors optional at extra cost. Ideal for every industrial, commercial or institutional refrigeration need, Norris walk-ins can be supplied with the correct self-contained or remote refrigeration equipment to meet any application.

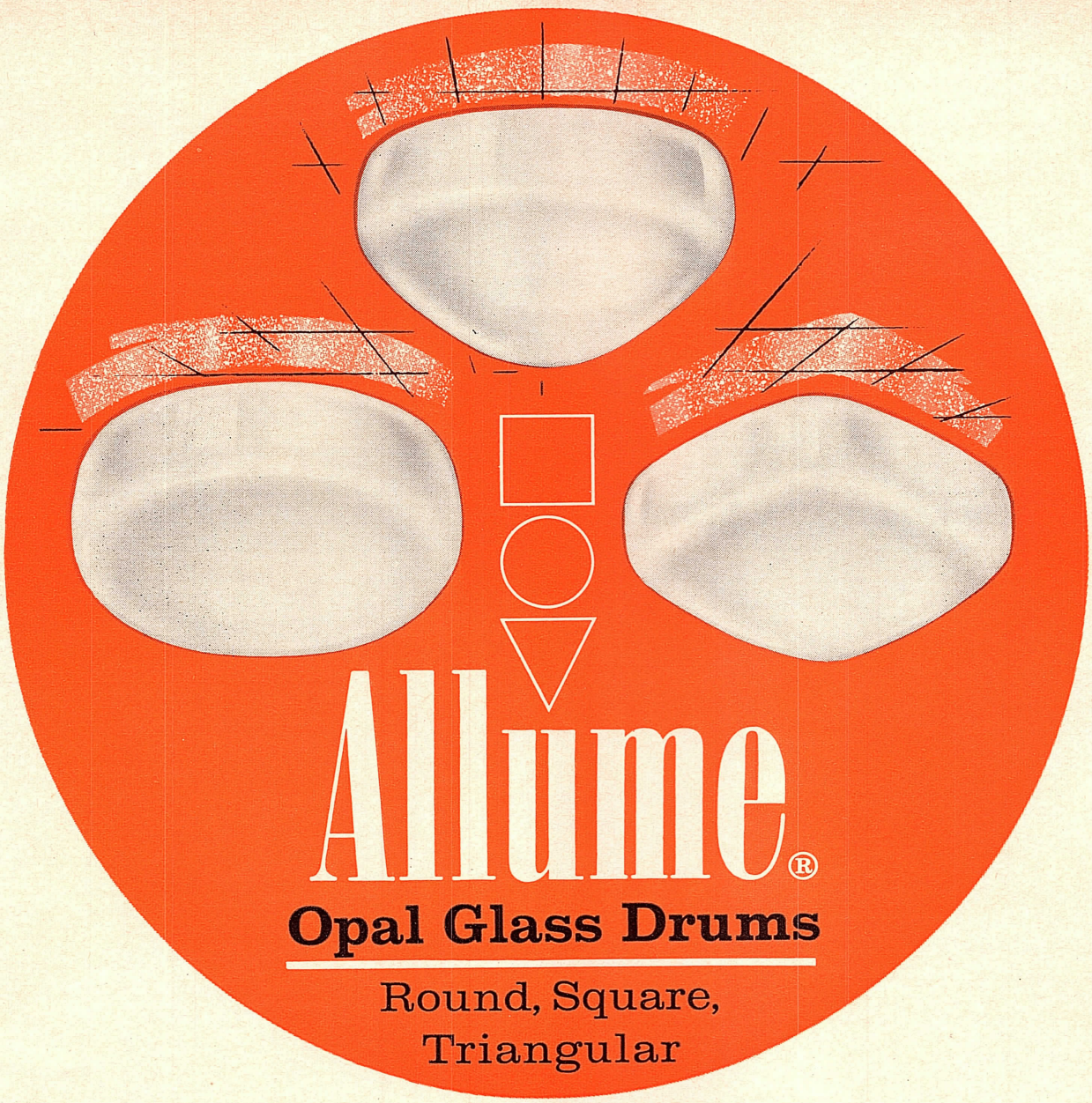
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Norris

NORRIS DISPENSERS, INC.
2720 LYNDALE AVENUE SOUTH
MINNEAPOLIS 8, MINNESOTA

NORRIS—THE FIRST NAME IN MILK SERVING AND STORAGE EQUIPMENT!

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Art Metal's beautiful new Allume Opal Glass Drums give you three shapes in three sizes for a wider application range and more variety in design. Each of these elegant look-alike drums is a glowing, all-luminous unit, with no visible metal to detract from its appearance.

And they're built to last. The handsome fixtures are firmly secured by a metal retainer ring. True hinge construction with self-locking safety catch leaves both hands free when relamping or cleaning.

Take a long look at Art Metal's new Allume Opal Glass Drums before you specify or purchase. And for complete details, write for our colorful Bulletin No. OD1-864.

(Round Allume Drums)

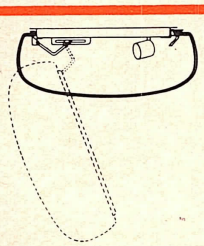
DIA.	DEPTH	WATTS
10 7/16	4 5/8	2-60W(120W)
12 7/16	4 5/8	2-75W(150W)
14 7/16	4 3/4	3-60W(180W)

(Square Allume Drums)

SQ.	DEPTH	WATTS
10 7/16	4 5/8	2-60W(120W)
12 7/16	4 5/8	2-75W(150W)
14 7/16	4 3/4	3-60W(180W)

(Triangular Allume Drums)

LARGEST OVERALL DIM.	DEPTH	WATTS
11 3/16	4 5/8	2-60W(120W)
13 5/16	4 5/8	2-75W(150W)



ART METAL® WAKEFIELD CORPORATION
LIGHTING DIVISION
1814 E. 40th St., Cleveland 3, Ohio

In Canada, Wakefield Lighting Limited, London, Ontario

For more data, circle 121 on Inquiry Card

Roll-Formed Metals

continued from page 226

legs), angles and curved sections, then it is possible that the section already is available from some roll-former's shop. Even when the "exact" shape desired is not available, frequently a simple "slitting" operation will provide the precise section wanted. A coded library of available shapes is currently under consideration by the stainless steel industry and may soon be available as a reference. Should such a shape meet the requirements, not very many lineal feet (perhaps as few as one or two thousand) of section would be needed to make this fabrication method less expensive than brake-forming or other manual operations requiring much material handling. Further, the nominal length limitations of brake-forming (usually well under 20 ft) do not apply to roll-forming, where almost any length that can be handled can be supplied; and this can lead to a marked reduction in the number of joints.

2. *How many lineal feet of each section are needed for the project or would it make sense for an initial production run of an item to be assembled from the parts?* Where the section needs to be fairly complicated to function fully in the application, the number of lineal feet to be produced becomes "critical." When 25,000 to 50,000 or more lineal feet of a given section may be needed, it is almost always worth the time to investigate what roll-forming can do.

3. *Will the strength of the part (under typical or anticipated load, in use) require rather heavy masses in the section?*

Frequently, relatively light-gauge metal can be "rolled" into such tightly configured shapes that the strength of the section is superior to extruded shapes. This is particularly true in the case of the stainless steels normally specified in architectural applications, since these grades have a "work hardening" characteristic which may add 10 to 20 per cent to the yield strength values of already quite strong steels. In some cases, the over-all dimensions of the section may be materially less than originally conceived.

Sometimes a special section, having complicated convolutions at its periphery, will leave much "unused" metal in the middle, if specified as an extrusion. Roll forming can omit metal where it is not needed.

4. *How "critical" to the design is the sharpness of any visible arris or other corner or turn in the drawn section?*

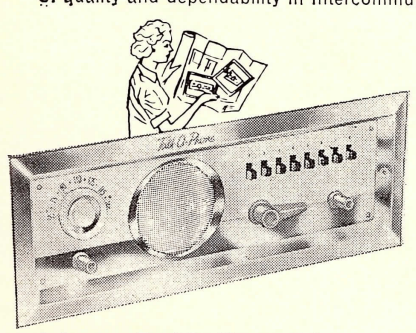
Frequently, designers will indicate a 90-degree corner simply because they have been accustomed to getting such corners in extruded shapes and they like the "crispness" of their design when viewed close at hand. But often these sharp corners are used in locations where they are much too far from any viewing eye to be "read" as sharp as they are. Also sharp corners are susceptible to denting and burring. With roll-forming, unless the "arris" radius is "critical," it is usually better to use standard minimum bend radii listed in handbooks for the particular metal. However, by a variety of specific techniques, experienced roll-formers can "tighten up" corners to meet most situations.



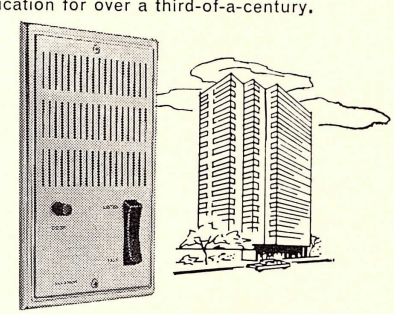
Distinctively styled, with more dependability and higher efficiency than any Intercom ever developed . . . yet sensibly priced. Meets every Intercom need of office and industry. Proportioned like a book to lie flat on the desk . . . only 3 inches high. Combines the look and feel of fine grained leather with the strength and rigidity of steel. Beautifully finished in charcoal gray with brushed chrome side panels From a 2-station system to an elaborate installation, you can do it better and more economically with Talk-A-Phone. Pays for itself many times over.

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TALK-A-PHONE . . ."Has Everything. Does Everything." The accepted standard of quality and dependability in Intercommunication for over a third-of-a-century.



Intercom For The Home. Enjoy comfort, convenience and peace of mind. From any room you can . Listen-in on baby, children or sick room . Answer outside doors . Talk to anyone—upstairs or downstairs, inside and out . Enjoy radio. Distinctively styled. Beautifully finished. Easily installed.



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Secoton®

elastic waterproof coatings



The Kalita Humphreys Theater
Dallas, Texas
Taliesin Associated Architects

impermeable vinyl membrane expands up to 300%—bridges and covers masonry breaks!

SECOTON vinyl coatings solve virtually every problem inherent in today's modern masonry structures — structures, for example, like the SECOTON-protected Kalita Humphreys Theatre in Dallas.

SECOTON forms a tough, seamless membrane that elongates up to 300% at 70 degrees F . . . remains flexible at temperatures as low as —30 degrees F . . . contracts and expands with normal structural movements . . . automatically bridges and conceals surface breaks. "Locks out" moisture — stops structural damage by preventing water from freezing and expanding in cracks and crevices.

SECOTON can be applied to a wide variety of materials — concrete, block, brick, tile and over most previously painted or waterproofed surfaces. Unexcelled for interior use — highly resistant to abrasion, provides complete scrubability, beautifully decorative, will not support combustion.

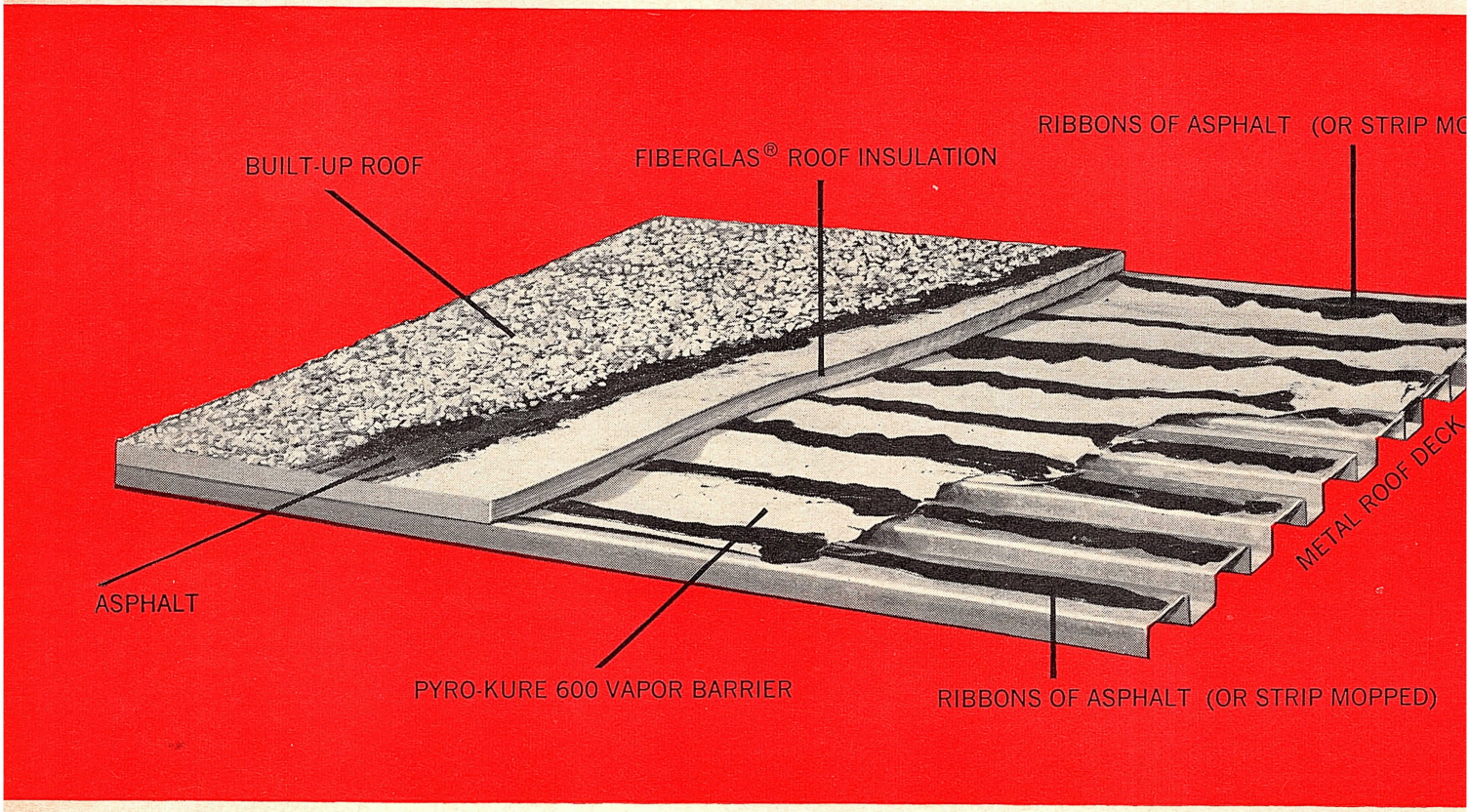
For catalog and handy "Spec Riter" see your local SECO representative or write to . . .

SECO
SURFACES

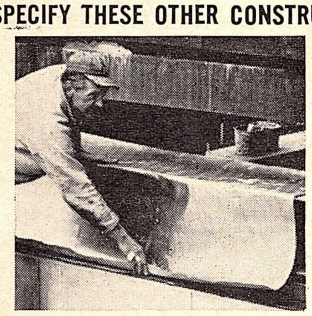
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834 Ohio Avenue ST. LOUIS, MISSOURI 63103

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Specify Pyro-Kure 600 Vapor Barrier for Class metal roof deck construction because .

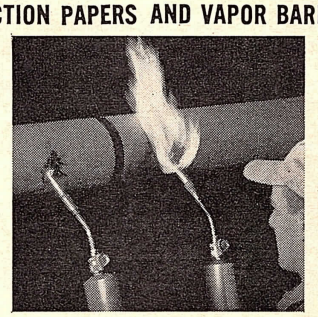


SPECIFY THESE OTHER CONSTRUCTION PAPERS AND VAPOR BARRIERS FOR MAXIMUM PROTECTION IN CRITICAL BUILDING AREAS



Copper Armored Sisalkraft

For concealed flashing with pure copper at 1/5th the cost of heavy copper: COPPER ARMORED SISALKRAFT.® A combination of electro-deposit copper and reinforced Sisalkraft that provides lifelong protection against moisture penetration at vulnerable points in the structure.



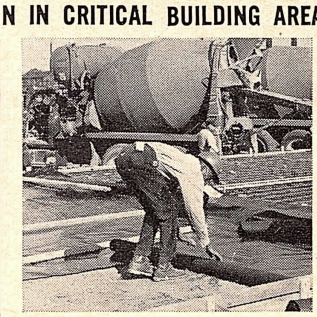
Pyro-Kure

Permanent, noncombustible vapor barriers for pipe jacketing, air conditioning duct insulation and industrial insulation facing: PYRO-KURE®. A line of flame-resistant, reinforced laminations with a U/L flame spread rating of "25 or less." Complies with National Building Code standard for noncombustibility.



Curing Papers

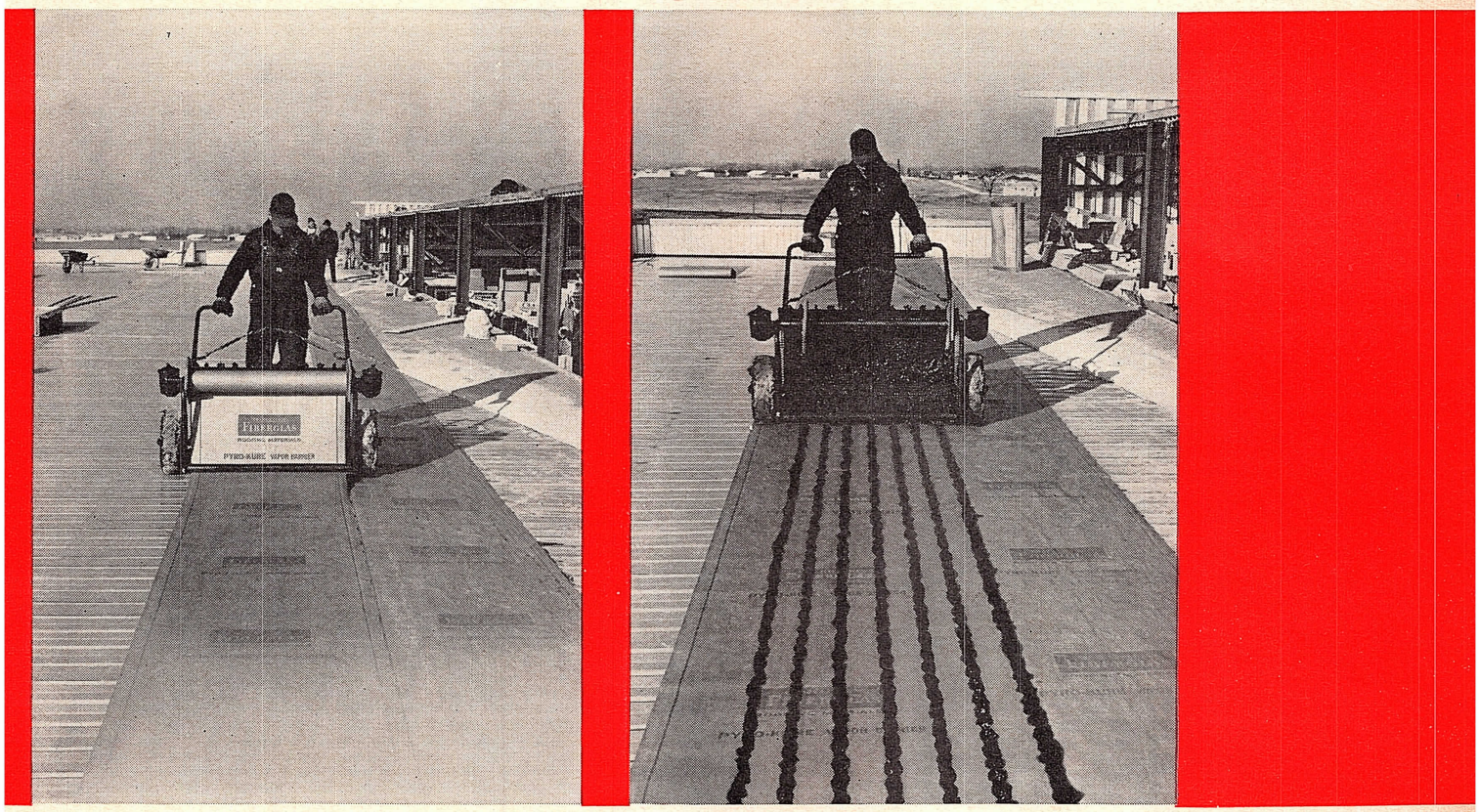
For maximum protection and curing of concrete: SISALKRAFT® CURING PAPERS. Reinforced, waterproof papers prevent damage and soiling of newly placed concrete slabs. Retards hydration, provides a maximum cure for harder, denser concrete floors.



Moistop

To prevent moisture migration through concrete slabs: MOISTOP®. A six-ply barrier of reinforced Sisalkraft with black polyethylene film extrusion coated on both sides. Moistop will not rip and tear like plain polyethylene film. Applied under concrete, Moistop helps keep floors dry.

PYRO-KURE® IS 4 WAYS BETTER THAN VINYL FILM



Pyro-Kure is the permanently noncombustible vapor barrier that makes Class I Roof Construction on metal decks safer, easier and less costly: Pyro-Kure has twice the vapor resistance of vinyl film, resists abrasion, tears and puncturing during application, and is approved for use with regular asphalt.

Results: 1) a roof with maximum, assured protection against condensation from within the building which can damage insulation, **2)** an easier to handle, familiar installation job to the contractor, **3)** lower applied costs for the owner, **4)** a vapor barrier that retains its integrity over 100% of the roof area because it resists tears . . . has no pinholes . . . is never punctured by "hot stuff" dripping between insulation joints.

Pyro-Kure is Factory Mutual Approved for use with metal decks and Fiberglas® insulation. It has a U/L Flame Spread Rating of 25.

Specify Pyro-Kure 600 for Roof Decks. It is applied with conventional felt-laying equipment, using steep asphalt at 12 to 15 lbs/100 sq ft, or it can be strip mopped. No special adhesives or procedures are required. Check Sweet's File 8h/Si or your Sisalkraft "Vapor Barrier Specification Guide" for complete details. Distributed by Owens-Corning Fiberglas Corp.

Send For Sample and Data Kit. Compare tough Pyro-Kure against vinyl and you will see why this new, lower cost vapor barrier system has become the new standard for roof construction. Write today: Sisalkraft, 73 Starkey Avenue, Attleboro, Massachusetts.

SISALKRAFT DIVISION ST REGIS

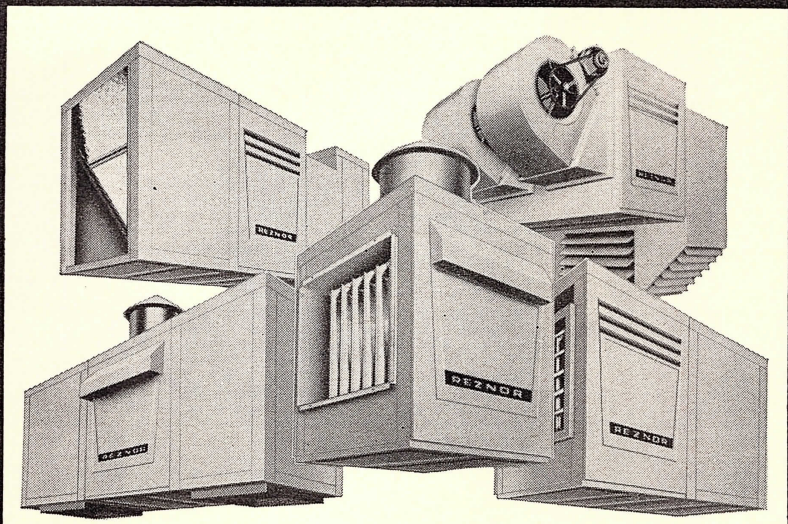
For more data, circle 124 on Inquiry Card

REZNOR
GAS HEAT

PROVED IN USE

YOU DO GET MORE WITH

THERMOCORE



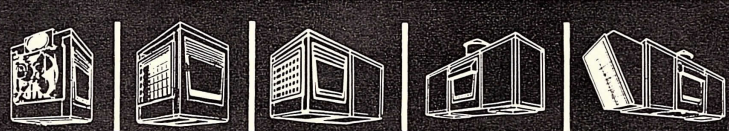
ARCHITECTS SELECT EQUIPMENT QUICKLY FROM REZNOR'S COMPLETE LINE

Why? Because they can easily choose the proper job-required system from a variety of ducted, non-ducted, and combination heating and heating/cooling packages to satisfy customers with the best in heating comfort. Assemblies come pre-engineered, fully packaged... designed around the THERMOCORE heat core. High quality plus special installation and service features save time and money. REZNOR has been in the gas heating business exclusively since 1888. Now performances everywhere prove that THERMOCORE does give you MORE reliability, MORE adaptability and MORE serviceability.

See your local representative. Look for REZNOR in the Yellow Pages. For our latest THERMOCORE Catalog write today to Dept. C5-1A.

ITT
HEATING AND AIR CONDITIONING GROUP • INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

REZNOR
REZNOR MANUFACTURING COMPANY
Direct Fired Equipment Division
1150 Chesapeake Avenue • Columbus, Ohio 43212



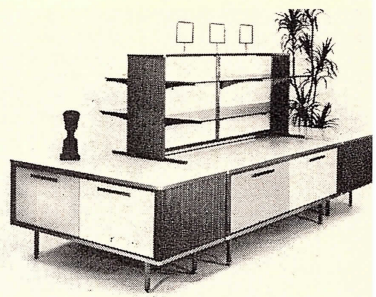
For more data, circle 125 on Inquiry Card

Product Reports

continued from page 227

STORE FURNISHINGS

The *Americana* line of store furn
ings claims complete dimensional
curacy and careful design so that
ferent pieces can be fitted togethe
give the appearance of custom-b
components. Radial corners help



produce clean lines and prevent
sightly delamination as a result
sharp edges. Components are av
able with a wide selection of finis
hardware and legs, to suit indivic
requirements. *American Fixture I
Joplin, Mo.*

CIRCLE 305 ON INQUIRY C

ELECTRIC WASTEBASKET

The *Destroyit* electric wastebas
shreds important papers not inten
to be read again, and can also har
ordinary paper waste which does
require shredding. The shredd
machine starts and stops itself au
matically when paper is fed into i
convenient spring-door can be u
for inserting the other waste. *Elec
Wastebasket Corp., 145 West 45th
New York, N.Y.*

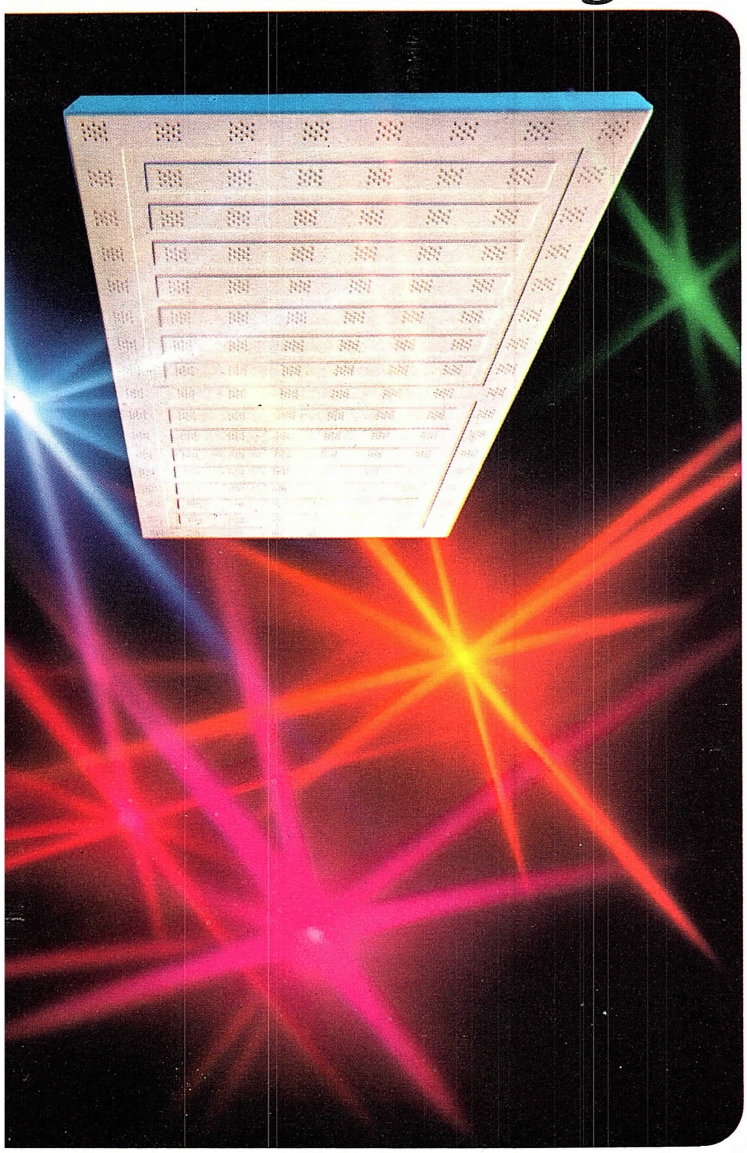
CIRCLE 306 ON INQUIRY C

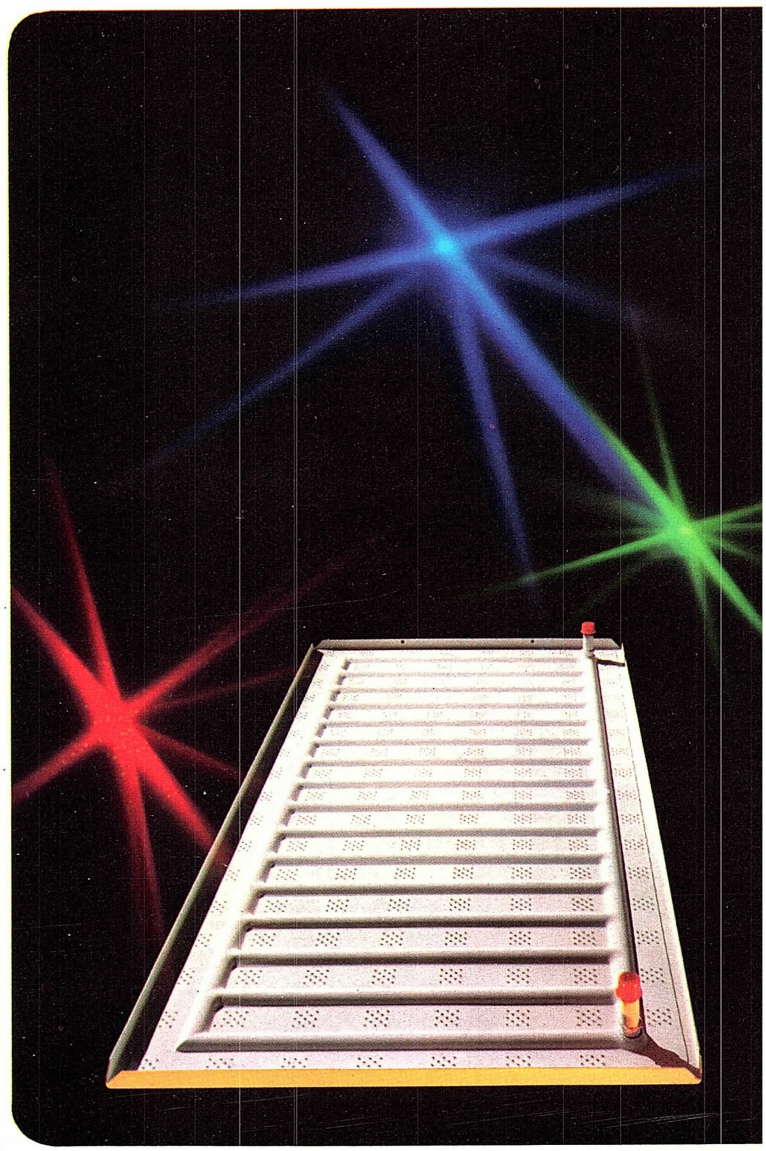


more products on page

For more data, circle 126 on Inquir

Inland Hi-Performance Radiant Ceilings





Heating and cooling now built in!

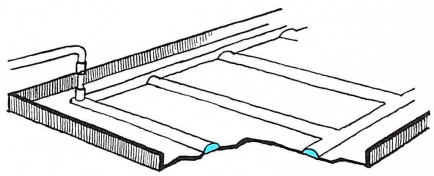
Here, without question, is the most efficient radiant heating and cooling ceiling panel ever designed. The new Inland IRC/HP Hi-Performance Panel cuts conductivity losses to a fraction by eliminating separate pipes, panels and connecting methods. The one-piece IRC/HP contains its own integral water channels.

Because the water which heats or cools the panel is in *direct contact* with the exposed radiant surface, the IRC/HP approaches the theoretically perfect panel in performance. Only a *single* thickness of metal is involved.

This high performance means better comfort control, even in problem areas with large expanses of exterior glass. Intricate zoning of air is virtually eliminated. Savings on mechanical equipment and in erection time are significant.

The exposed surface of an IRC/HP panel presents a sculptured profile which minimizes the pattern of acoustical perforations. Panels are finished in low-gloss white baked enamel.

IRC/HP is one of three types of Inland radiant-ceiling panels. All are described in Catalog 251. Write today for your copy to Inland Steel Products Company, 4400 W. Burnham Street, Milwaukee, Wisconsin 53201.

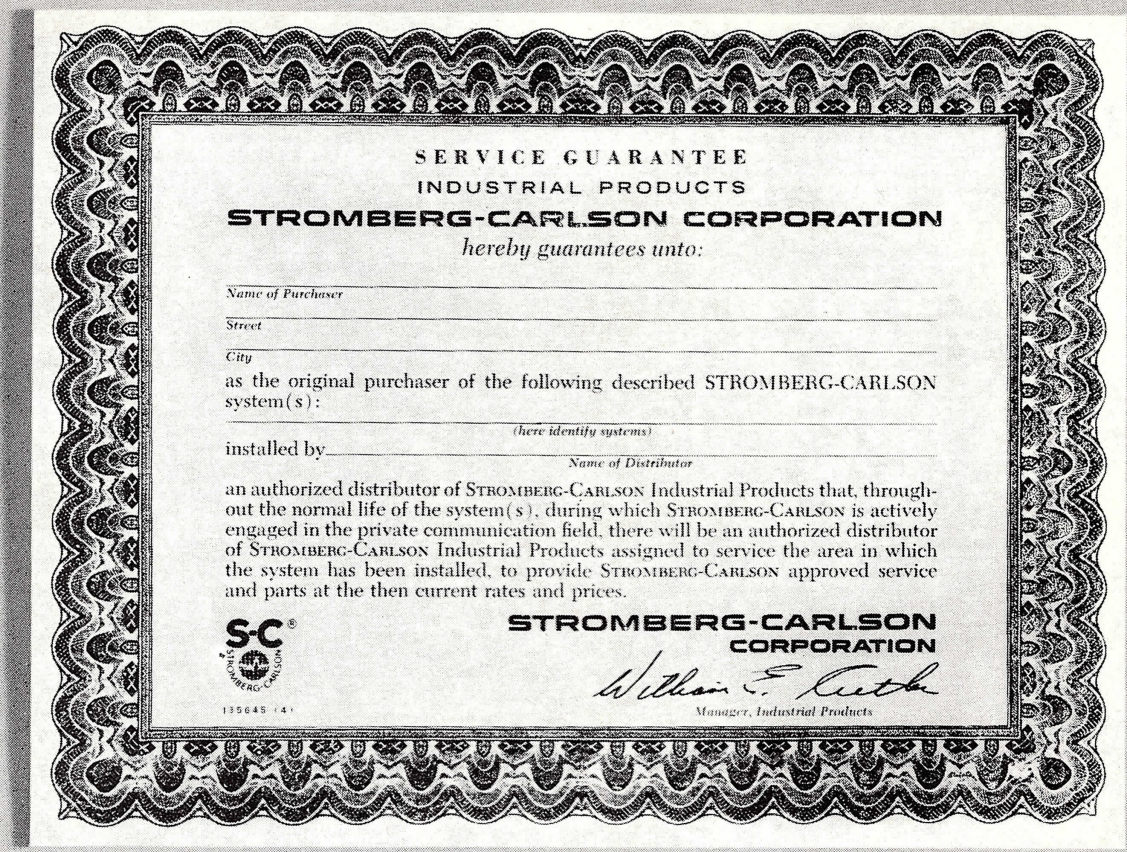


Cross-section of Inland IRC/HP panel shows two layers of heavy-gauge steel brazed together to form water channels across the top surface. 2′ x 4′ modules fit standard lay-in ceiling grids, simplifying integration with lighting panels and partition systems. Self-contained water channels free designer to create imaginative ceiling effects without expensive plumbing installations.

Inland Steel Products

INLAND®

EP-47



SERVICE GUARANTEE

INDUSTRIAL PRODUCTS

STROMBERG-CARLSON CORPORATION

hereby guarantees unto:

Name of Purchaser

Street

City

as the original purchaser of the following described STROMBERG-CARLSON system(s):

(here identify systems)

installed by *Name of Distributor*

an authorized distributor of STROMBERG-CARLSON Industrial Products that, throughout the normal life of the system(s), during which STROMBERG-CARLSON is actively engaged in the private communication field, there will be an authorized distributor of STROMBERG-CARLSON Industrial Products assigned to service the area in which the system has been installed, to provide STROMBERG-CARLSON approved service and parts at the then current rates and prices.

S-C® STROMBERG-CARLSON

STROMBERG-CARLSON CORPORATION

135645 (4)

William E. Custer

Manager, Industrial Products

When you buy a Stromberg-Carlson communications system we don't promise you the world



We do promise you service

We even put it in writing. Guaranteeing you service availability. Why? Because a school, hospital or business communications system is only as good as the service behind it.

Our Service Guarantee is just another good reason to specify Stromberg-Carlson systems: Nurse's Call, Personnel Registries, Electronic Educators, Automatic Fire Alarms, Communication Control Centers, Intercoms, Multi-resident Central Call, etc. To learn more about what's new in Stromberg-Carlson's service-backed communication systems, clip this coupon.

Stromberg-Carlson Corporation
P.O. Box 226, Rochester, N. Y. 14601 **Dept. 100**

Gentlemen:
I'd like to know what's new in Stromberg-Carlson's communications equipment. Please have a representative call.

NAME_____

ORGANIZATION_____

ADDRESS_____

Since 1894 . . . "There is nothing finer than a Stromberg-Carlson"

STROMBERG-CARLSON
CORPORATION

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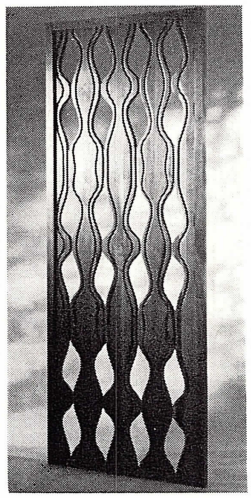
For more data, circle 130 on Inquiry Card →

Product Reports

continued from page 240

ARVED WOOD GRILLES

most 30 different designs are ailable in the *Filiwood* series of chitectural carved wood grilles, ade from pine and birch plywood in rious thicknesses. A new type of nel has now been added to the comny's line. "Architectural Carved



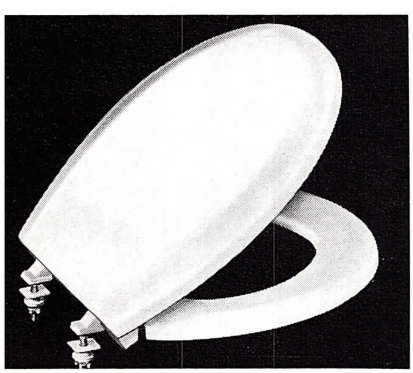
ood" panels (see photo) are made om solid hardwoods, such as walnut, k, gum. Panels are available in es up to 2 ft by 8 ft and in 15 different designs. *Customwood Manucturing Company, 3620 High Street E., Albuquerque, N.M.*

CIRCLE 307 ON INQUIRY CARD

LASTIC TOILET SEAT

ne No. 680 solid plastic toilet seat r regular rim bowls features new mi-concealed offset hinges. These nges have the dual advantage of lding the seat and cover in an "up" sition without any special mechanms, and of checking the seat and ver to prevent them from striking e closet tank or valve handle. *Bene Corp., Columbus, Miss.*

CIRCLE 308 ON INQUIRY CARD



more products on page 256

For more data, circle 131 on Inquiry Card ➔



Halsey Taylor frost-proof drinking fountains have been designed for use in stadiums, playgrounds, swimming pools, and other outdoor installations exposed to freezing temperatures. Automatic frost-proof supply valve and drain assembly provide for complete drain back into plumbing cabinet mounted on interior wall face.

Wall-mounted fountains with single 2-stream projector are available in stainless steel or porcelain-enamelled cast iron.

For complete information about Halsey Taylor frost-proof drinking fountains, write for NEW catalog. Also listed in SWEET'S ARCHITECTURAL FILE and the YELLOW PAGES.

Halsey Taylor®

THE HALSEY W. TAYLOR CO. • 1554 THOMAS RD. • WARREN, O.

No cutting or fitting of frost-proof valve assembly required on job site. Fountain and valve ready for installation. A 1¼" O.D. drain tube elbow is provided with extra length to allow for exact cut-off (1-inch) entrance into interior plumbing cabinet. Valve extensions are made to customer's exact wall thickness.



ACOUSTIFORM®: new medium-density lay-in ceiling panel by Celotex

Light enough for fast installation and maintenance ...

That's right! New Celotex Acoustiform panels have the correct weight balance to keep installation and maintenance costs down: Heavy enough to stay in the grid without time-consuming hold-down clips—light enough for fast installation and easy removal for maintenance.

Acoustiform mineral fiber panels are an entirely new product development from Celotex. They're engineered to soak up lots of sound, but no moisture. That's why they keep their dimensional stability under high-humidity conditions, even while wet-work is in process. Acoustical properties are excellent, too. NRC range: .80-.90. Attenuation values, 35-40 range.



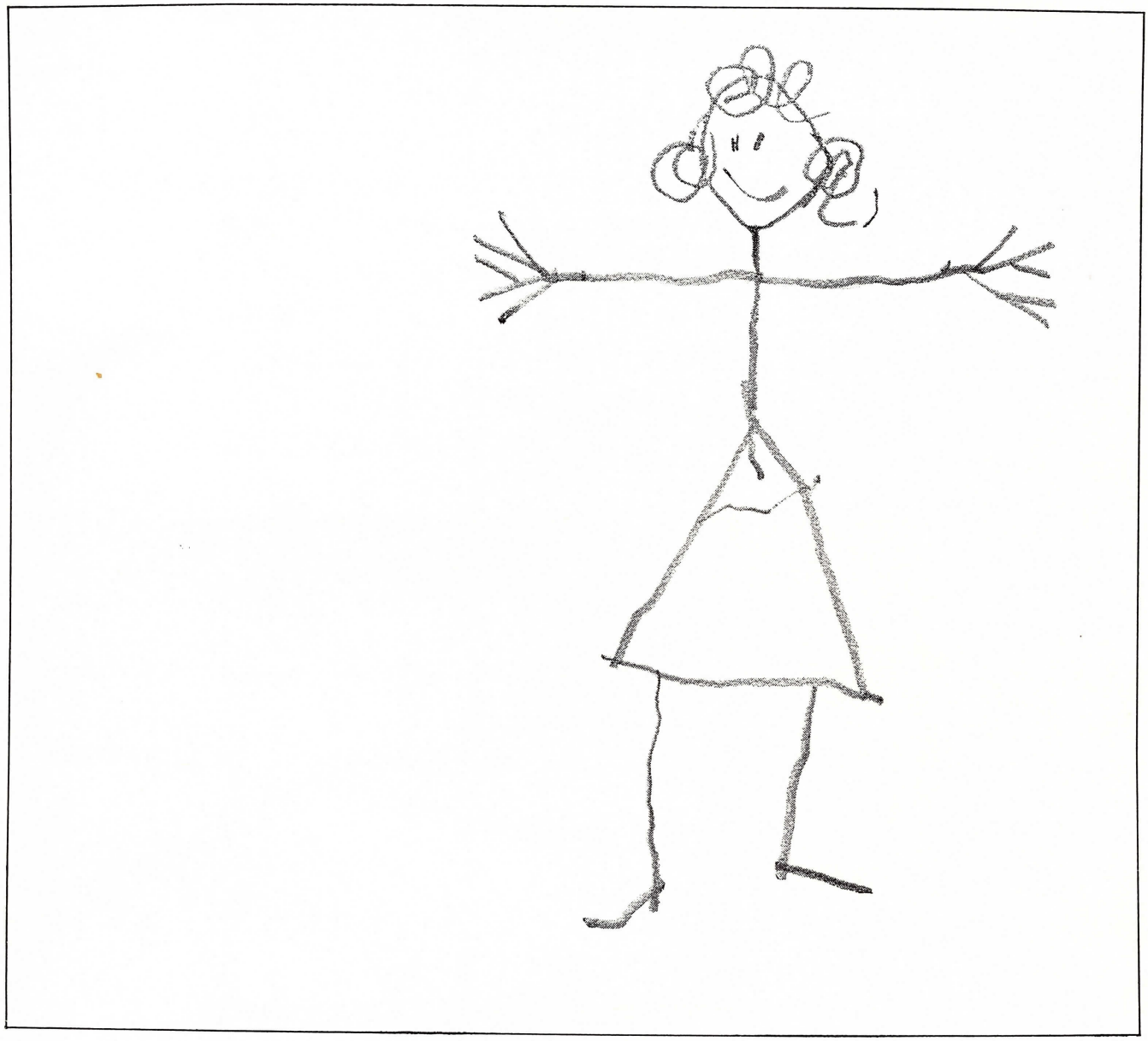
heavy enough to eliminate need for hold-down clips

Acoustiform panels won't breathe. They attract less dust and dirt, reducing maintenance. They withstand repeated cleaning.

New Acoustiform panels come in four distinctive patterns. A range of thicknesses and sizes (24″ x 24″ to 48″ x 72″) enables you to meet any design, installation or span requirement. Available as Class A (noncombustible) conforming to the 0-25 flame spread classification by ASTM-E-84. Also as Protectone® panels for UL time-rated assemblies.

Call your Acousti-Celotex consultant-distributor for complete product information, samples and guide specifications. See the Yellow Pages. Or write The Celotex Corporation, 120 South LaSalle St., Chicago, Ill. 60603.

ACOUSTI-
CELOTEX
REG U.S. PAT. OFF.
PRODUCTS



How to lose 3900 lbs.

It can't be done overnight, of course. It took 60 years.

Take the compressor that weighed 4000 lbs. in 1902.

By 1949 we'd whittled that down to 198 lbs.

And our latest model—same capacity—weighs in at a slim 94 lbs. We turned the trick in a couple of ways.

First, by speeding up from 160 rpm to 3500 rpm.

Second, by simplifying. Today's Carrier model has only 89 parts, compared to 265 for its immediate predecessor.

Why did we slim down?

The lighter the compressor, the less it costs—even after we pay more per pound for better materials. Takes less room. Easier to install, too.

That's why we lost weight.

We did it for the good of your clients. All of them.

We take equivalent care with every detail in everything we do. That's why you can use Carrier equipment with complete confidence.

Carrier Air Conditioning Company

More people put their confidence in Carrier air conditioning than in any other make

For more data, circle 132 on Inquiry Card

For more data, circle 133 on Inquiry Card

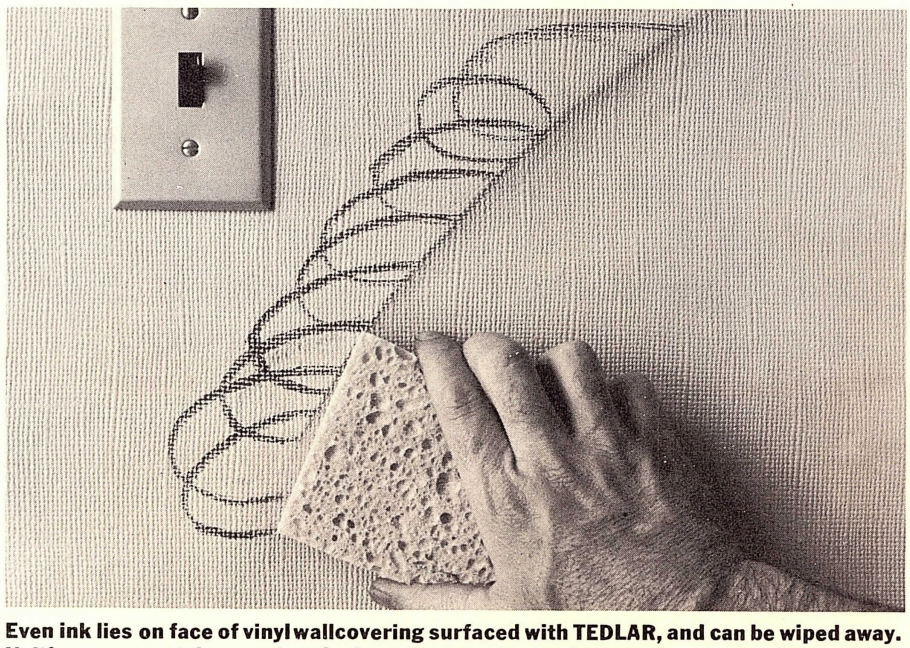
For more data, circle 134 on Inquiry Card

This new vinyl wallcovering is surfaced with TEDLAR®. It is as stainless as ceramic tile. Please try to stain it. Try crayon, mustard, ballpoint pen, iodine, shoe polish, coffee, tar, lipstick—even blood. Then wipe it away without a trace. Use powerful cleaning agents if you like—caustic soda, paint-remover, even MEK. None can harm this new wallcovering. Stain it, if you can.

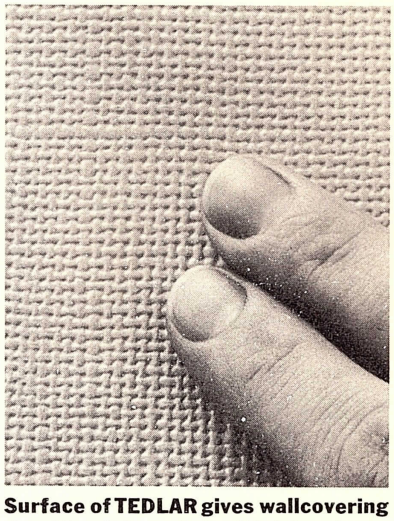
This new vinyl wallcovering is as stainless as ceramic tile. Its surface of Du Pont TEDLAR* PVF film is so inert to chemicals that stains lie on the top, and can be wiped away. This wallcovering will stay new-looking—its colors fresh—for many years. For illustrations and more details, turn the page.

*Du Pont registered trademark.

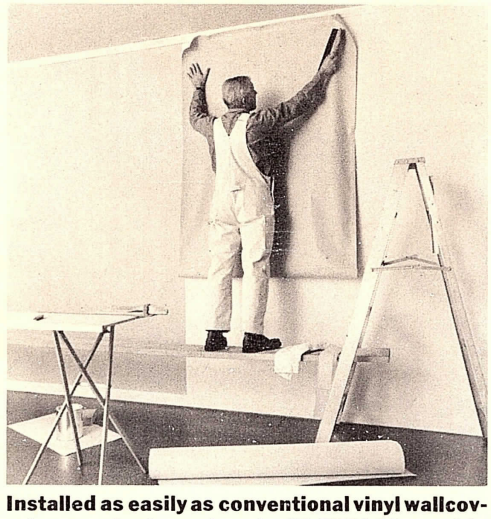
This new vinyl wallcovering, surfaced with Du Pont TEDLAR®, is as stainless as ceramic tile. Already, it's in wide use.



Even ink lies on face of vinyl wallcovering surfaced with TEDLAR, and can be wiped away. Neither severe stains nor harsh cleansing agents can harm appearance of material.



Surface of TEDLAR gives wallcovering durable, stain-resistant finish, yet preserves warmth and appeal of textured vinyl.



Installed as easily as conventional vinyl wallcovering, products surfaced with TEDLAR provide lasting beauty, easier cleaning and lower maintenance costs.

Vinyl wallcovering surfaced with TEDLAR is now available in many colors, patterns and gauges, from leading manufacturers. For case-history information and samples, write Du Pont Company, Room 2681, Wilmington, Delaware 19898.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING... *THROUGH CHEMISTRY*



Ever since prehistoric man went around doodling all over the walls of caves, Homo Sapiens has had an irresistible urge to leave his mark wherever he passes. Even the research engineers at J. Josephson, Inc., have been known to play Tit-Tat-Toe on our fabulous FLEXAR wall coverings. J. J., our President, is indulgent. He knows FLEXAR turns a cold shoulder to stains, smears, mars and scuffs. That it washes and wipes clean in a minute. That it's eternally young, aesthetically pleasing, completely hygienic. That it comes in a host of patterns, in a variety of shades, weights, and degrees of gloss.

J. Josephson really put FLEXAR through its paces before presenting it to the public. We torture tested it far more ruthlessly than it could ever be assaulted in any normal installation. We simply couldn't ruffle its composure.

Of course that was (23) months ago. Since then FLEXAR wall coverings have been used in hundreds of installations across the country. In schools, restaurants, hotels, motels, hospitals, labs, etcetera, etc. Drop us a note if you haven't seen it on-the-job. We'll tell you where . . . near you.

Oh yes, J. Josephson was first to use DuPont Tedlar* PVF film for wall coverings. Send for our Swatch book, too. It's a handy guide to have on hand.

J. Josephson inventories FLEXAR in depth in all colors and patterns at all times. You can count on immediate delivery.

FLEXAR with Du Pont Tedlar* PVF Film

*Du Pont Registered Trademark

1. Atlas Fadeometer (ASTM-D-620)—No appreciable change 500 hrs.

2. Taber Abrasion CS-17 Wheel 1000 gram load—After 1000 revs. Loss of 0.1075 grams.

3. Scuff Resistance (Taber Shear/Scratch 206)—Material surfaced with Tedlar required 33% higher loading to cause same damage as plain vinyl.

4. Scrubbability (Federal Test Method 141)—No significant wear after 1000 strokes of a stiff hog bristle brush and a cake grit cleaner applied every 200 strokes.

5. Tensile Strength (Instron Tensile Tester)—Tensile strength increased about 100% in both "Warp" & "Fill" directions.

6. Flammability (U.L. Approved) (ASTM-E-84-61)

Flame Spread	20
Fuel Contributed	0
Smoke Development	10

7—Stain Removal

KEY: 1—Water; 2—Soap & Water; 3—"Lestoil" (Full Strength); 4—Cleanser & Water; 5—Solvent (Toluene); NS—No Stain; R—Removed; NR—Not Removed

Type of Stain	"Flexar"	Vinyl
Merthiolate	2-R	5-NR
Shoe Polish	2-R	5-NR
Ketchup	1-R	5-NR
Grease	4-R	5-NR
Nicotine	2-R	5-NR
10% Potassium Permanganate	2-R	5-NR
Stamp Pad Ink	2-R	5-NR
Rubber Scuff Marks	NS	2-R
Marking Pen	5-R	5-NR
Ball Point Pen Ink	4-R	5-NR
Lipstick	4-R	5-NR
5% Nitric Acid	NS	5-NR
5% Hydrochloric Acid	NS	5-R
Crayon	2-R	3-R

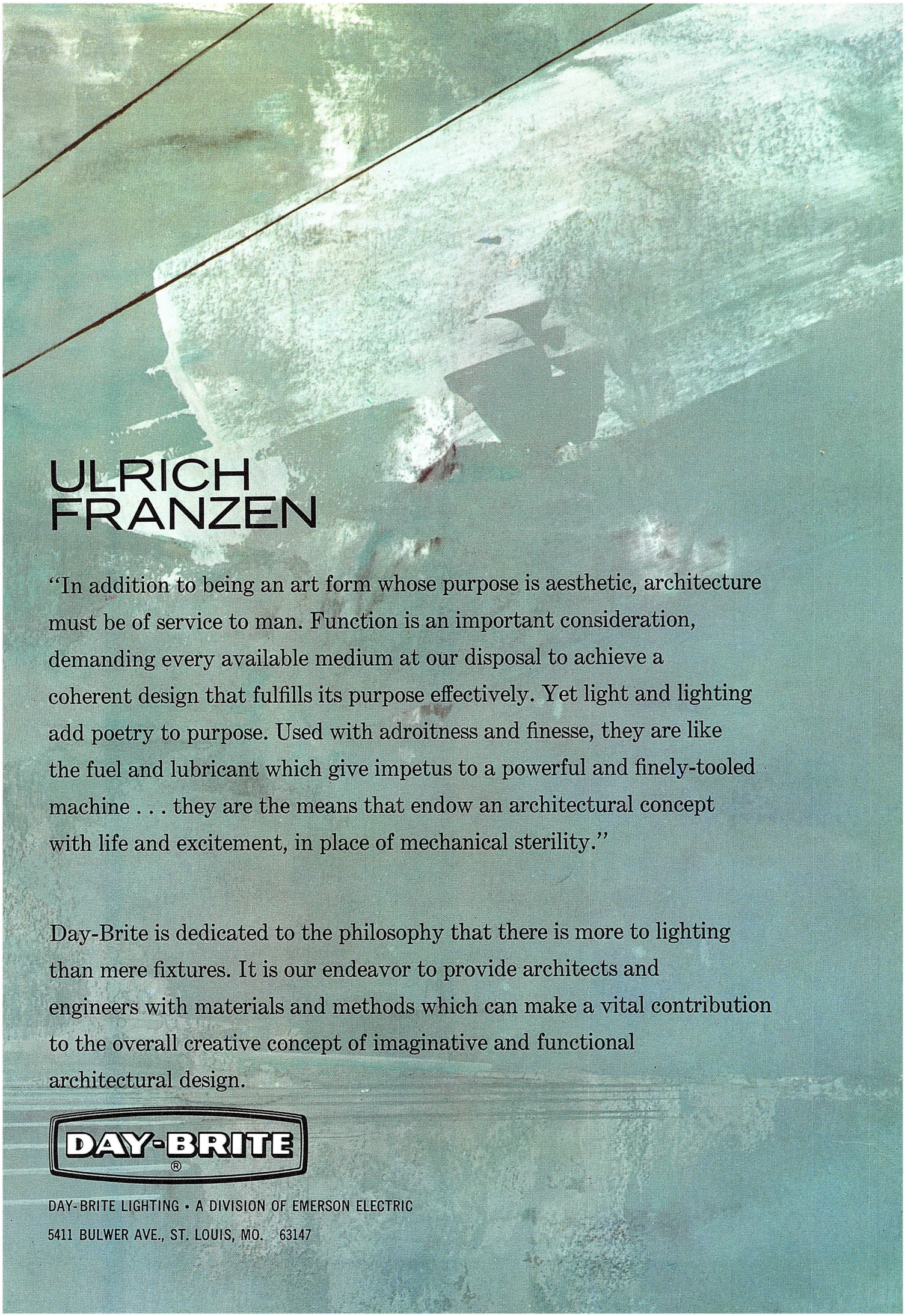
J. JOSEPHSON, INC.

132 W. 21 St., New York, N.Y. 10011 (212) OR 5-5616

For more data, circle 135 on Inquiry Card

For more data, circle 136 on Inquiry Card


HEATH



ULRICH FRANZEN

"In addition to being an art form whose purpose is aesthetic, architecture must be of service to man. Function is an important consideration, demanding every available medium at our disposal to achieve a coherent design that fulfills its purpose effectively. Yet light and lighting add poetry to purpose. Used with adroitness and finesse, they are like the fuel and lubricant which give impetus to a powerful and finely-tooled machine . . . they are the means that endow an architectural concept with life and excitement, in place of mechanical sterility."

Day-Brite is dedicated to the philosophy that there is more to lighting than mere fixtures. It is our endeavor to provide architects and engineers with materials and methods which can make a vital contribution to the overall creative concept of imaginative and functional architectural design.

DAY-BRITE®

DAY-BRITE LIGHTING • A DIVISION OF EMERSON ELECTRIC

5411 BULWER AVE., ST. LOUIS, MO. 63147

Product Reports

continued from page 247

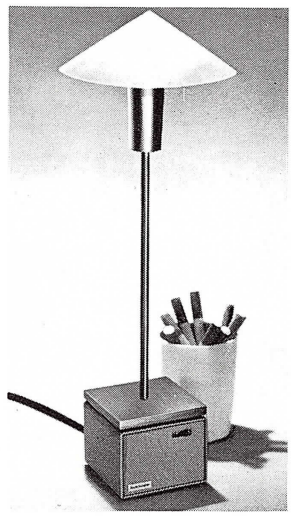
NEW BASE FOR ARCHITECTURAL FINISHES

Kynar 500 is a new fluorocarbon resin used as a base for exterior finishes. When applied as a liquid finish to aluminum or steel *Kynar 500* is said to provide protection to metal surfaces for as long as 30 years. Paint firms are now formulating these finishes, and firms producing pre-finished aluminum and steel siding are also employing *Kynar 500*. Finishes are available in white and a wide range of colors. Gloss ranges from flat to medium. *Pennsalt Chemicals Corporation, 3, Penn Center, Philadelphia, Pa.*

CIRCLE 309 ON INQUIRY CARD

HIGH INTENSITY TABLE LAMP

A new table lamp known as *The Bouguer* consists of a 2½-in. square base, a 12-in. high standard and conical-shaped, translucent shad which is also a reflector. The lam uses a frosted version of the 12-vol No. 93 bulb. A high-low switch at th

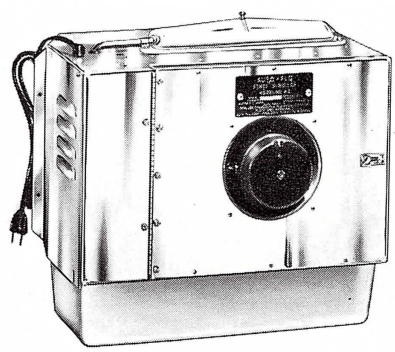


base of the lamp provides light of 5 to 30 footcandles. The stem is gold painted steel. *Tensor Corporation 1873 Eastern Parkway, Brooklyn N.Y.*

CIRCLE 310 ON INQUIRY CAR

POWER HUMIDIFIER IN STAINLESS STEEL

The *Series 40* power humidifier is no available in a stainless steel oute casing. The new models are obtainabl in both pump and solenoid type unit Features listed for the new units are self-contained blower, specific design for every application and water area



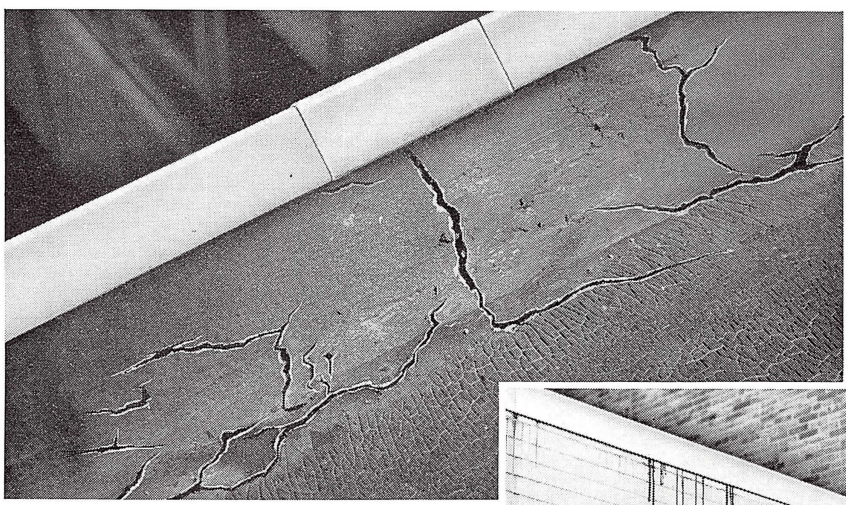
airtight construction, corrosion-re sistant stainless steel interiors, flus mounting on duct or plenum, and hig capacity—up to 22 gallons of pur water vapor per day. *Auto Flo Cor poration, 12085 Dixie, Detroit 3 Mich.*

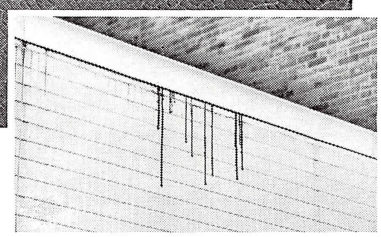
CIRCLE 311 ON INQUIRY CAR

more products on page 26

NO CLIENT OF YOURS NEED EVER UNDERGO THIS!

see SWEETS (a) 8G-Hi

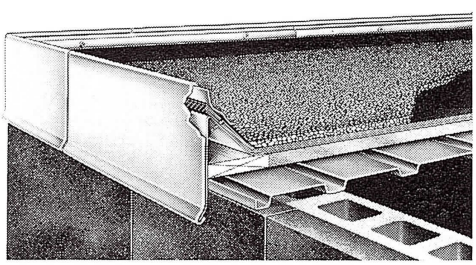




Tar drippings on fascia and walls are effectively prevented when the Hickman System is specified. (see Sweet's)

HICKMAN (pat.)
FASCIA AND WATER DAM
Safeguard SYSTEM

BY PREVENTING cracks in roofing felts where they are mopped to a metal water dam other than galvanized iron, gives absolute control of roof water at the eaves. This cracking is due to the differences in the expansion and contraction coefficients of the felts and improperly selected metals for the water dam. In the Sweet's pages you read how the Hickman System resolves these differences.



This cut-a-way view of a Hickman installation not only shows the essential units but indicates also that the wall design is enhanced by Hickman "free-floating" extruded aluminum fascia with concealed cover plates. Available in Clear Anodized, Kalcolor, Porcelain Enamel, and Baked Enamel.

WRITE FOR ADDITIONAL SWEET'S PAGES AND FOR INFORMATION ON SPECIAL APPLICATIONS

W. P. HICKMAN COMPANY, INC. 23100 DEQUINDRE, 313-536 3512 WARREN, MICHIGAN 48091

For more data, circle 137 on Inquiry Card

Bare USS Cor-Ten Steel faces the music

From the top of the 100-ft. high tripod down to grade, this bandstand at Purdue University is unique. The tripod is made of bare, unpainted USS COR-TEN Steel that is weathering to a pleasing dark brown. From its apex, 60 stainless steel cables support a steel and concrete canopy over a bandshell that resembles a half circle of Stonehenge megaliths.

The architect specified bare USS COR-TEN Steel for exposed steelwork to eliminate painting and maintenance. COR-TEN steel has an unusual ability to protect itself against atmospheric corrosion. As it weathers, it forms a dense, tight oxide that protects the base metal against further attack. If scratched, or abraded, the oxide re-forms. The resulting color and texture have a natural, architecturally pleasant look. Unlike man-made coatings, this one improves with age and maintains itself.

USS COR-TEN High-Strength Low-Alloy Steel provides 40% more usable strength than structural carbon steel. The columns were fabricated from T-sections cut from COR-TEN steel WF beams. Stiffening diaphragms are welded between the T-sections. The canopy is made of precast concrete panels set in a steel grid, and is pinned to the tripod columns to prevent sidesway.

A great many exciting things are being done with exposed steel these days, especially USS COR-TEN Steel. A word of caution: The use of bare COR-TEN steel is not appropriate for all applications. An understanding of its limitations is necessary for satisfactory use. While COR-TEN steel is available in practically all forms produced in carbon steel, the designer should avoid specifying it where the quantity will be less than one ton of a size. This will help minimize procurement problems. We suggest you send for our new booklet, "USS COR-TEN Steel for Exposed Architectural Applications," and consult with a USS Construction Representative through your nearest USS Sales Office. United States Steel, 525 William Penn Place, Room 8062, Pittsburgh, Pa. 15230. *USS and COR-TEN are registered trademarks.*

Slater Center for the Performing Arts, Purdue University, Lafayette, Ind.
Architect: Joseph Baker and Associates.



USS United States Steel: where the big idea is innovation



Who says you can't please everyone?

A personal water cooler may be a bit far-fetched . . . but it shows how tastes, budgets, and applications differ.

Now there are modern General Electric water coolers in a wide range of styles, sizes and prices . . . with a complete choice of accessories to meet your clients' needs. Here are some of the models you can choose from:

Wall-mounted Trapezoid-shape Coolers—Off-the-floor models keep the floor clear for easy cleaning. Compact design saves aisle space while handling the cold or hot-and-cold drinking needs of up to 132 people.

Floor Model Trapezoid-shape Coolers—Smart styling compliments modern office decor . . . yet these coolers are tough enough for rugged factory use. Serve cold or hot-and-cold water for up to 132 persons. Permit three-way drinking access, saving aisle space.

Refreshment Center—Here's the ultimate in water coolers for executive use . . . serving up to 90 persons. Versatile unit features hot-and-cold water plus spacious refrigerator.

Compact Bottle Coolers—Need only 1 square foot of floor space to serve up to 30 persons with cold (or hot-and-cold) water.

Standard Floor-mounted Coolers—Four models are available to supply cold water needs of from 68 to 258 workers. Units feature dual hand and foot controls.

Specify these modern and functional coolers to meet your client's needs. (How about your own office?) For complete information, call your nearby General Electric Supply Company or local dealer. Or write Section 761-35, General Electric Company, Chicago Heights, Illinois 60411.

Progress Is Our Most Important Product

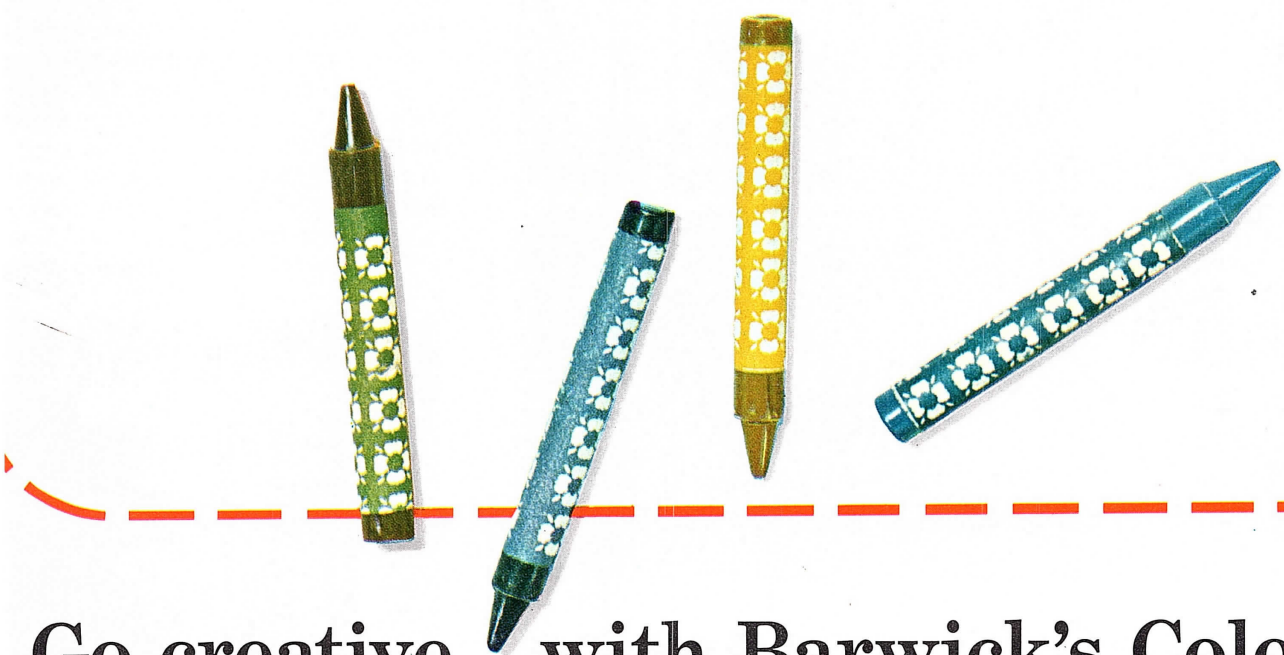
GENERAL ELECTRIC

CONSTRUCTION INDUSTRIES DIVISION

For more data, circle 138 on Inquiry Card

For more data, circle 139 on Inquiry Card





Go creative...with Barwick's Colorset

ver wished for a carpet that didn't exist? Felt a need r a truly unusual design? Then you've been waiting r COLORSET . . . Barwick's *electronic* method r making plush patterned carpet. COLORSET is e first *real* advance in creating multicolored designs carpet since the Jacquard loom in 1804.

OLORSET designs take any shape or form . . . any mber of colors . . . any yarn. At an electronic speed at's hard to believe, COLORSET transforms ele- nt designs into deep-pile, permanently patterned rwick carpet... so beautiful and yet so rugged and silient. Designs flow through the entire thickness. e-metalized dyes assure long years of color clarity.

So go ahead . . . get creative with COLORSET. Make thick Barwick carpet a dramatic part of your next decorating theme. Select from a collection of imaginative designs in a rich range of luscious, lasting colors. For additional information and samples, write to Barwick's CONTRACT DEPARTMENT today.

Barwick fashions ACRILAN ACRYLIC / NYLON / HERCULON OLEFIN (the longest wearing carpet fibers known) into luxurious COLORSET carpet pile of radiant, enduring designs.

E T Barwick mills, inc.

CHAMBLEE, GEORGIA

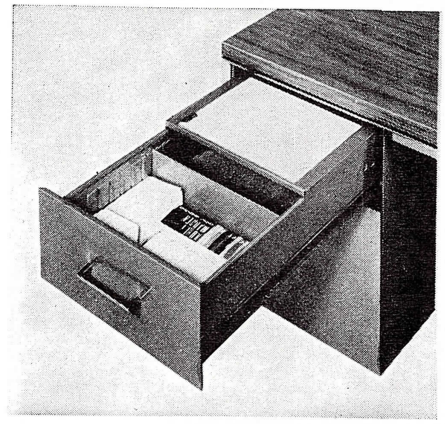
World's largest maker of tufted carpets and rugs

Product Reports

continued from page 256

VERSATILE DESK LINE

This 60-in. by 30-in. desk in the company's 4200 series has a self-edged plastic laminate top and features mitered drawer fronts, thin-line chrome hardware, flush side panels and leg uprights, and square leveling glides. All models in the series incorporate an automatic reference



shelf. Located in either top box drawer, the shelf extends the full length of the drawer and automatically slides all the way out each time the drawer is opened. Four self-lubricating plastic pads allow the shelf to slide easily

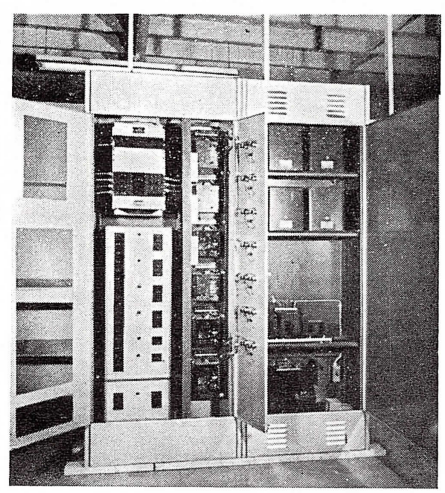


to any position, providing full access to the drawer's contents. *Steelcase Inc., 1120 36th St., S.E., Grand Rapids, 8, Mich.*

CIRCLE 312 ON INQUIRY CARD

PACKAGED UNGROUNDED ELECTRICAL DISTRIBUTION SYSTEMS

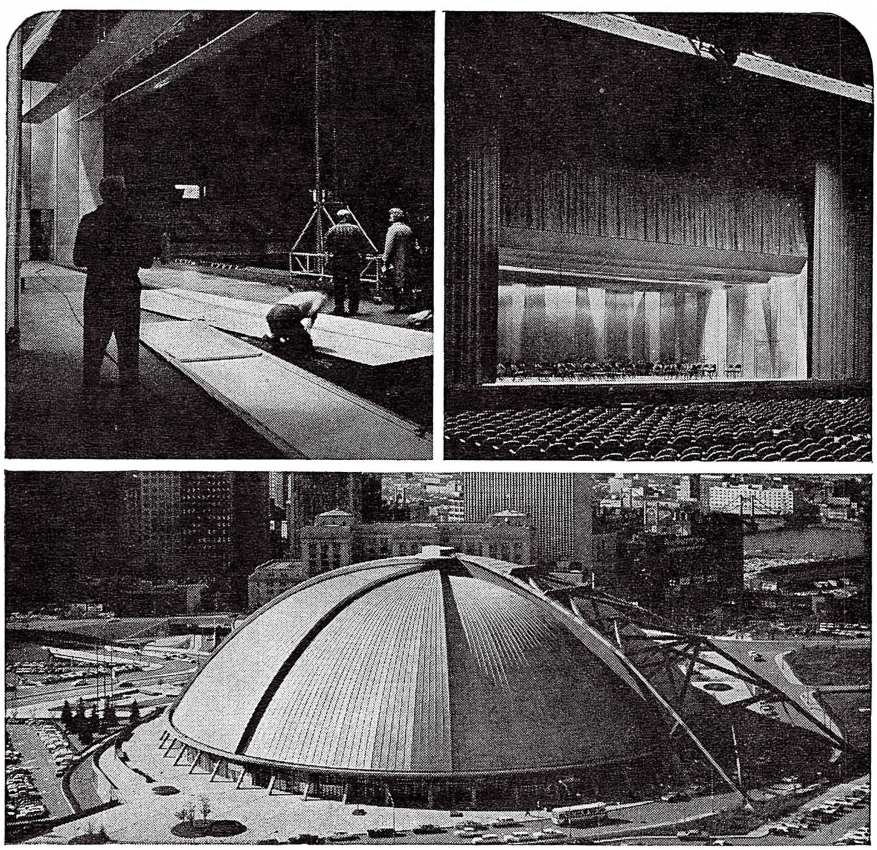
The Edwards Company's pre-engineered, ungrounded electrical distribution systems are designed for hospitals and other locations where flammable anesthetics are to be administered. Also incorporated in the package is ground detection equipment—protective warning apparatus which actuates individual audible and visible



signals if a conductor in the circuit should become grounded. The photo shows the company's *GDS* packaged ground detector system for a seven surgery installation. Main and branch breakers are at left, plug-in detector relays are in center panel, isolating transformers are at right. *Edwards Company Inc., Norwalk, Conn.*

CIRCLE 313 ON INQUIRY CARD

more products on page 270



Architect: Mitchell & Ritchey — Malcolm Smith photographs

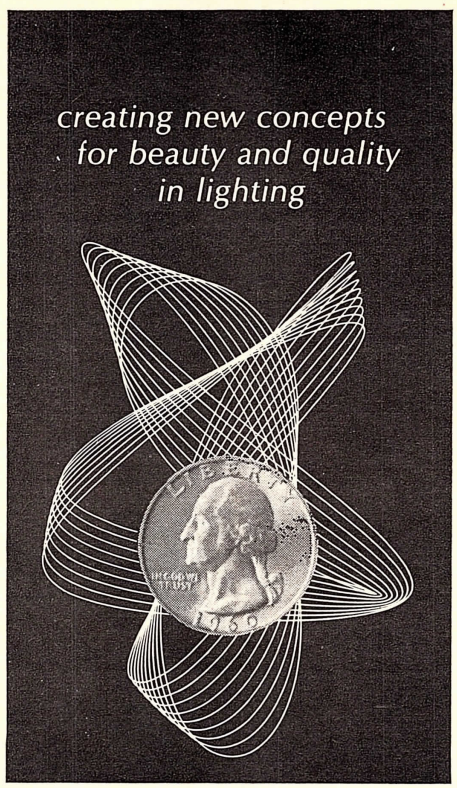
for perfect acoustics ...anywhere

A Stagecraft acoustic shell is used in Pittsburgh's Civic Arena to enhance the acoustics . . . and the appearance . . . of the new auditorium. Indoors or out, every Stagecraft shell is tunable, can be adjusted to match the acoustic characteristics of the individual concert site. This means greater freedom for the designer, since musical balance can be modified after the hall is actually built. If you're interested in Stagecraft's complete service in musical acoustics, write today for our 12-page illustrated brochure.

STAGECRAFT CORPORATION
83 EAST AVENUE, NORWALK, CONNECTICUT 06852

For more data, circle 144 on Inquiry Card

For more data, circle 145 on Inquiry Car



MR. SPECIFIER: IT MIGHT COST 25¢ TO BE A PERFECTIONIST

(but K-S-H lighting panels are worth it)

Our K-Lite prismatic panels are standard with many fixture manufacturers. No extra cost!

But, in other instances, they do cost a *little* more. 20¢ to 25¢ per 1x4 fixture at the most. On 1,000 fixtures, the difference would be $250.

The owner gets his money back with interest. K-Lite panels are guaranteed to hold their color twice as long as IES-SPI-NEMA standards. They stay in use years longer than other panels.

And the lighting measures up to "perfectionist" standards. High footcandles with low brightness. Contemporary designs that conceal lamp images. No hot spots, streaks or glare.

The lens is a small fraction of lighting costs, yet it controls the final result. Get K-Lite lenses, in acrylic, polystyrene, or with new "Tedlar" film protection. Most major fixture manufacturers will provide them . . . *if you specify them.*

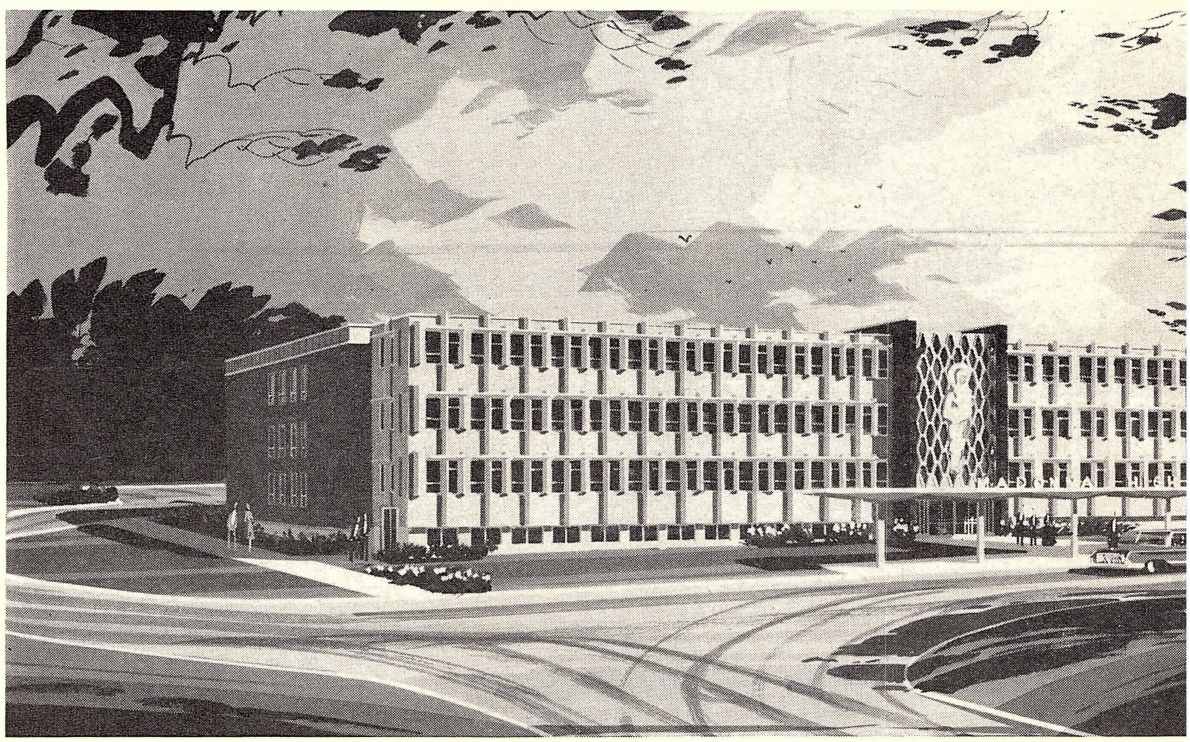
"Tedlar" is a Du Pont registered trademark

K-S-H PLASTICS, INC.
10212 Manchester • St. Louis, Mo. 63122

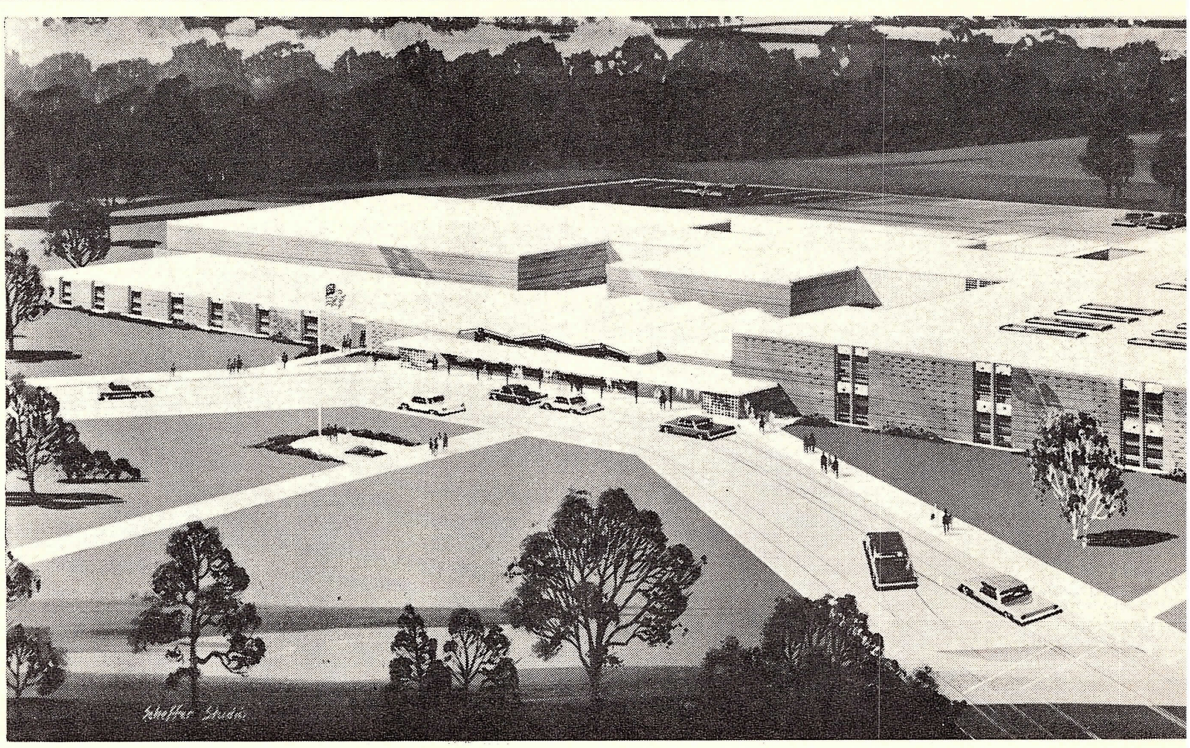
K-LITE®
LIGHTING PANELS

For more data, circle 146 on Inquiry Card

AMELCO WINDOWS WITH *Flexalum*® INTER-PANE BLINDS PROVID



Madonna High School, Milwaukee, Wisconsin •*Architect:* Grellinger-Rose Associates, Inc. •*Owner:* Sisters of The Sorrowful Mother •*General Contractor:* Kroening Engineering Corporation, Milwaukee •*Amelco Representative:* Architectural Building Products, Inc., Milwaukee/Green Bay



Southwest High School, Green Bay, Wisconsin •*Architect:* John E. Sommerville Associates, Inc., A.I.A. •*Owner:* Green Bay Public Schools •*General Contractor:* George M. Hougard & Sons, Inc. •*Amelco Representative:* Architectural Building Products, Inc., Milwaukee/Green Bay

DEAL STUDY ENVIRONMENT



All types of buildings "profit" with Amelco windows that incorporate the *Flexalum* venetian blind system BETWEEN the panes of glass.

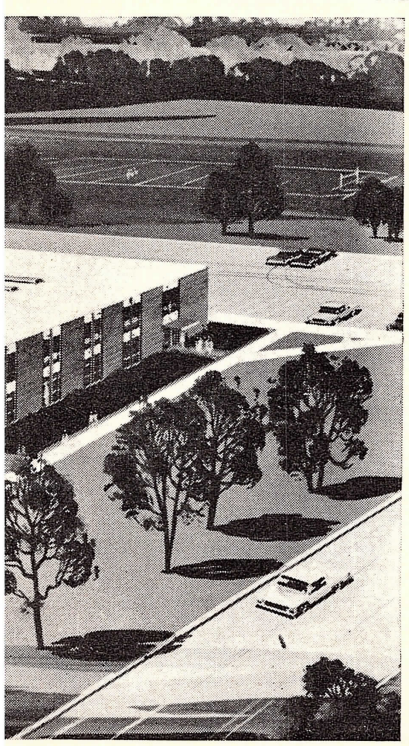
Now, after proof of performance in major commercial buildings, the NEW window concept comes to schools.

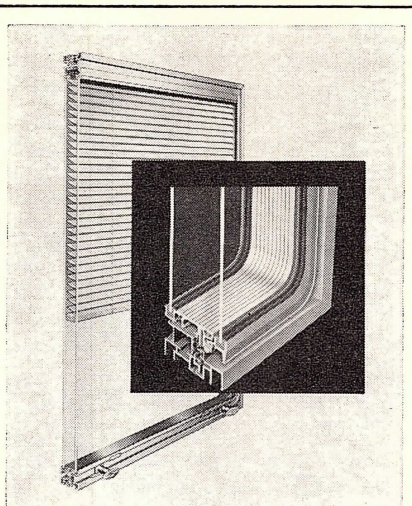
In schools, everyone benefits . . . heating, and cooling costs are substantially reduced, heat from solar radiation is reduced by more than 65%, classrooms are provided with unequalled control of LIGHT (venetian blinds provide ideal audio-visual light levels) SIGHT (distracted activities can be shut out) SOUND (Amelco windows reduce outside noise by more than 50%).

Write to Amelco or Flexalum for the full story!

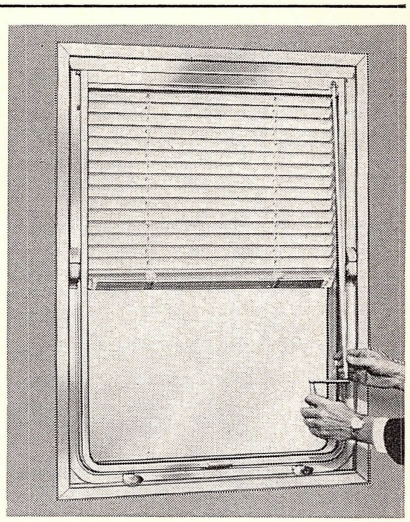
FLEXALUM DIV., Alcan Aluminum Corp., 111 W. 50th St., New York, N. Y.

AMERICAN ELUMIN COMPANY, 1676 Commerce Drive, Stow, Ohio





QUICK AMELCO FACTS Double glazing . . . 2 panes of glass enclose 2" air space. Thermal breaks in vent and frame . . . no through metal. Finish and material . . . heat treated anodized and sealed aluminum alloy (.100") min. thickness. Sizes . . . available in sizes to 7' high and 10' wide not to exceed 46 sq. ft. per window. Horizontal pivoting, permits ventilation and cleaning of all glass surfaces from inside the building.



QUICK FLEXALUM BLIND FACTS Built-in narrow louver aluminum venetian blind between panes of glass . . . virtually dust free . . . blind is concealed in top channel when raised. *Flexalum* Mono-Control brings control of blind within easy reach on tall windows. Control is extended crank to 'tilt' blind and to raise and lower. "Direct Drive" linkage assures fast, easy positioning of blind.

For more data, circle 147 on Inquiry Card

SPECIFY SUPERIOR QUALITY

Faserit

TO SOLVE YOUR CEILING PROBLEMS

✓ OLD CEILINGS WITH PROBLEMS or

✓ NEW CEILINGS PREVENTING PROBLEMS

Advantages found in Superior Quality

Faserit

- ELIMINATES FLAKING AND PARTICLES FALLING FROM THE CEILING. (Other types of acoustical plaster flake down.)
- ELIMINATES WATER RINGS, COLOR CHANGES AND EFFERVESCENCE. (Faserit does not have any LIME, CEMENT or GYPSUM to re-activate when in contact with high humidity or water.)
- ADHERES TO ANY BUILDING MATERIAL, OLD OR NEW. (Faserit contains a bonding agent and will adhere to the following materials: ACOUSTICAL PLASTER, ACOUSTICAL ASBESTOS, PRE-CAST AND POURED CONCRETE SLABS, drywall, lieu of white coat over browned plaster areas, old acoustical tile, "shredded wheat" type wood ceilings, plywood, galvanized steel, aluminum ceilings.)
- CAN BE TINTED TO ANY DESIRED COLOR. (Other types of acoustical ceilings are painted after installation, losing acoustical qualities. Color is added to Faserit before application.)
- ODORLESS AND NON-TOXIC. ACOUSTICAL AND NON COMBUSTIBLE.
- SPRAYED ON, USING A 4 FOOT, 6 FOOT OR 8 FOOT POLE GUN, THUS ELIMINATING SCAFFOLDING.
- FASERIT IS APPLIED BY ANY ACOUSTICAL CONTRACTOR, PLASTERING CONTRACTOR OR FRANCHISED FASERIT DEALERS.
- Superior quality Faserit is approved by many states, fire marshals, F.H.A. and City of New York Board of Standards and Appeals.
  Faserit acoustical veneer systems is listed in Sweet's Catalogue 11d FA

FASERIT IS DISPLAYED AT: ARCHITECTURAL MATERIALS CENTER 101 PARK AVENUE, NEW YORK CITY



Faserit OF AMERICA, INC.
6675 BISCAYNE BOULEVARD, MIAMI, FLORIDA 33138
TELEPHONE: (305) 759-8825

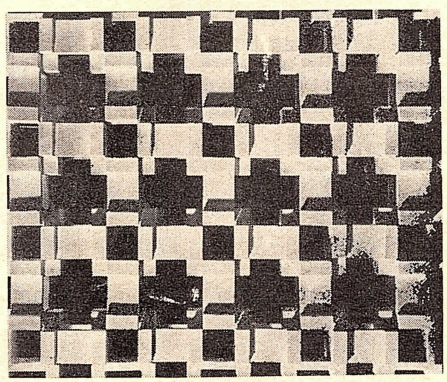
For more data, circle 148 on Inquiry Card

Product Reports

continued from page 264

NEW MODULE FOR SCULPTURAL PIERCED WALL COLLECTION

Design #8, a three-dimensional concrete block, 8 in. by 8 in. by 4 in. in size, has recently been added to the firm's collection of sculptural pierced walls, designed by Erwin F. Hauer. The new design is the first completely



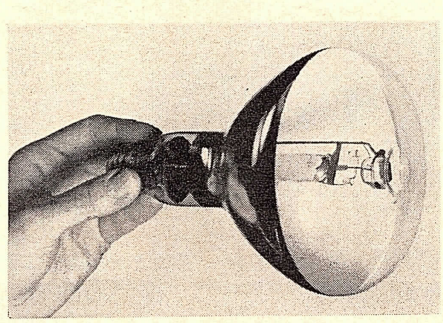
geometric block in the collection and is said to be easy to install in both interior and exterior situations. Each unit weighs 7 lb., and is available in beige and off-white. *Arts for Architecture Inc., 50 Rose Place, Garden City Park, N.Y. 11041*

CIRCLE 314 ON INQUIRY CARD

NEW 175-WATT MERCURY FLOODLAMP

General Electric's new 175-watt, internally reflectorized mercury floodlamp was designed for use where efficient and economical widebeam floodlighting is desired. The lamp is supplied with a weather-resistant R-40 bulb, with a medium screw base and can operate in any position. The initial beam lumen output is about 30 lumens per watt, the designed life is approximately 16,000 hours and the beam spread is 156 deg. *General Electric Company, Nela Park, Cleveland 12, Ohio*

CIRCLE 315 ON INQUIRY CARD



more products on page 274

GE SILICONE CONSTRUCTION SEALANT

CONTACT THESE REGIONAL DISTRIBUTORS FOR MORE INFORMATION AND YOUR LOCAL SOURCE OF SUPPLY

ALABAMA
BADHAM SALES COMPANY, INC.
1909 First Avenue, Birmingham

CALIFORNIA
VERTEX, INC.
4206 Charter Street, Los Angeles 58
850 S. Van Ness Avenue, San Francisco

COLORADO
STYRO PRODUCTS, INC.
70 W. 6th Avenue, Denver 80204

FLORIDA
ROWELL-VAN ATTA, INC.
273 E. Oakland Park Boulevard
Ft. Lauderdale
3660 South Westshore Boulevard, Tampa

GEORGIA
BADHAM SALES COMPANY, INC.
1145 Peachtree Street, N.E., Atlanta 30309

ILLINOIS
JONES & BROWN & CO., INC.
230 N. Canal Street, Chicago 6
STETSON BUILDING PRODUCTS
614 North Fairview, Mt. Prospect
112 Second Street, Moline

IOWA
STETSON BUILDING PRODUCTS
512 Southwest 9th Street, Des Moines

KANSAS
STYRO PRODUCTS, INC.
1401 Fairfax Trafficway, Kansas City

MARYLAND
R. T. GUMPERT COMPANY
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5708-B Frederick Avenue, Rockville

MASSACHUSETTS
REFRACTORIES & BUILDING SPECIALTIES, INC.
767 Concord Avenue, Cambridge 02138

MICHIGAN
HOLMES ASSOCIATES, INC.
1221 E. Nine Mile Road, Ferndale 20

MINNESOTA
EDWARDS SALES CORPORATION
2916 Girard Avenue South, Minneapolis 8

MISSOURI
STYRO PRODUCTS, INC.
1590 Page Industrial Boulevard, St. Louis 32

NEBRASKA
STETSON BUILDING PRODUCTS
33 Kiewitt Plaza
3555 Farnam, Omaha

NEW YORK
CHEMICAL BUILDING SUPPLY, INC.
250 W. 57th Street, New York City 10019
CONSTRUCTION PLASTICS CORPORATION
Box 73 Eastwood Station
4016 New Court Avenue, Syracuse 13206

NORTH CAROLINA
BADHAM SALES COMPANY, INC.
538 Hollis Road, Charlotte

OHIO
THE R. L. WURZ COMPANY
13320 Enterprise Avenue, Cleveland 44135
955 Proprietors Road, Box 209, Worthington
DURBROW-OTTE ASSOCIATES, INC.
1426 Clay Street, Cincinnati 10

PENNSYLVANIA
TOM BROWN, INC.
Library Road & Killarney Drive
Box 10313, Pittsburgh 15234
G. & W. H. CORSON, INC.
Joshua Road & Stenton Avenue
Plymouth Meeting 19462

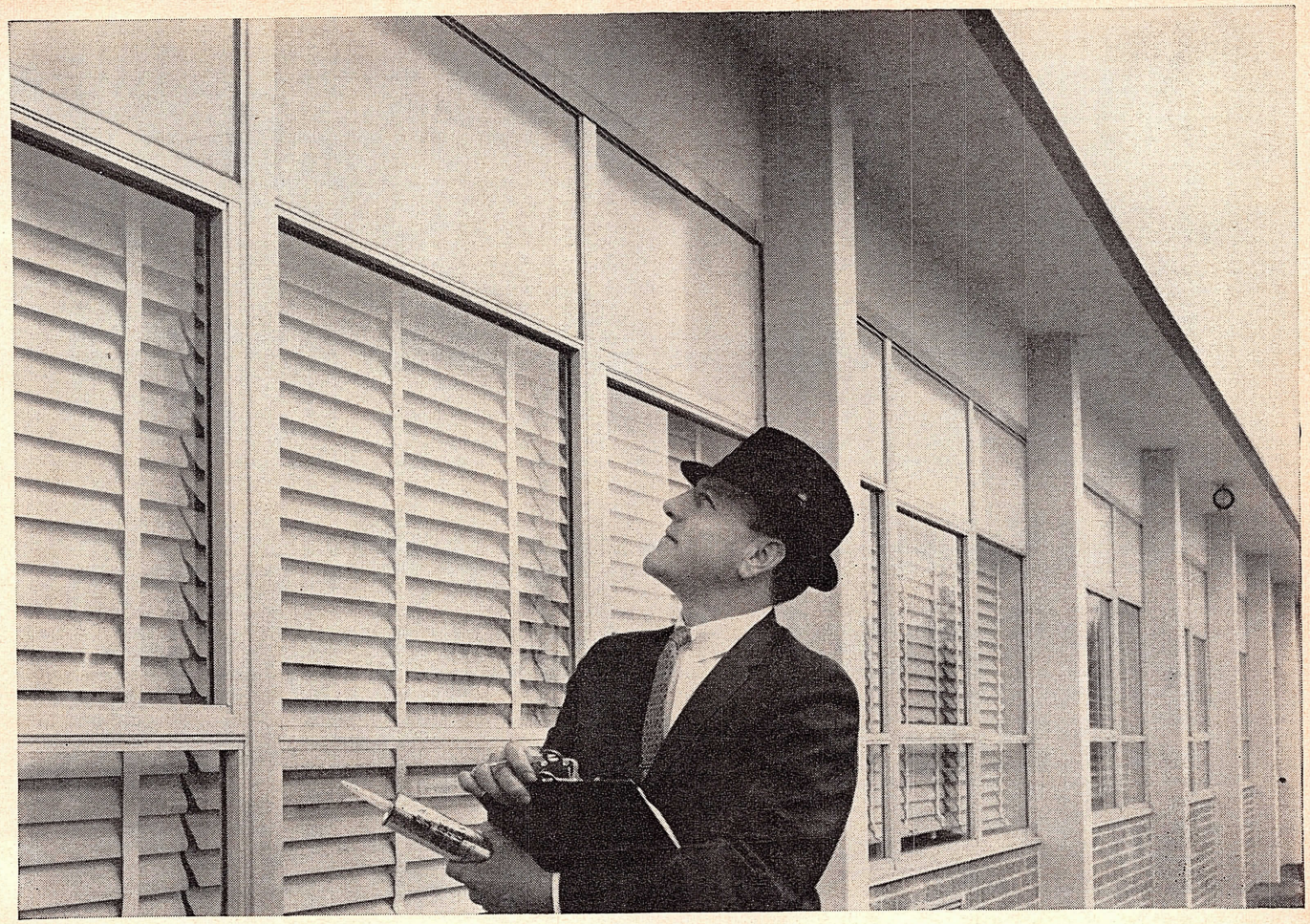
TENNESSEE
STYRO PRODUCTS, INC.
471 Tennessee Street, Memphis 3

TEXAS
THE EMERSON CO., Box 10913, Dallas
THE EMERSON CO., Box 2114, Houston 77052

WASHINGTON
WILEY-BAYLEY, INC.
3310 Meridian North, Seattle 3

WISCONSIN
EDWARDS SALES CORP.
321 N. 121 St., Milwaukee

GENERAL ELECTRIC



"Using G-E Silicone Construction Sealant our cost was 16% less..."

Stanley A. Fredrick, President, Hall Aluminum Products, Inc., Fort Wayne, Indiana

"We ran a cost study of porcelain panel installation on two identical schools. Installing 198 panels with a two-part polysulfide cost $665. Installing 198 panels with G.E. Silicone cost $555.

	Polysulfide	Silicone
Material	$331.50	$450.00
Labor	333.50	105.00
	$665.00	$555.00

"These panels were installed before the windows were erected. If the panels were field installed the cost would have been about the same." (Today, Hall Aluminum uses G.E. Silicone for all panel installation—field or shop.)

According to Mr. Fredrick's cost study, labor savings more than offset material costs. That's because one-part G.E. Silicone Sealant needs no mixing, heating or chilling. It flows on and bonds securely to all common materials even at extreme temperatures.

Once it's on, you can forget about costly call backs. G.E. silicone rubber retains its flexibility for at least 30 years. It resists severe strain, sunlight, ozone, weather, hot and cold temperatures. So it won't ever sag, shrink, crack or crumble.

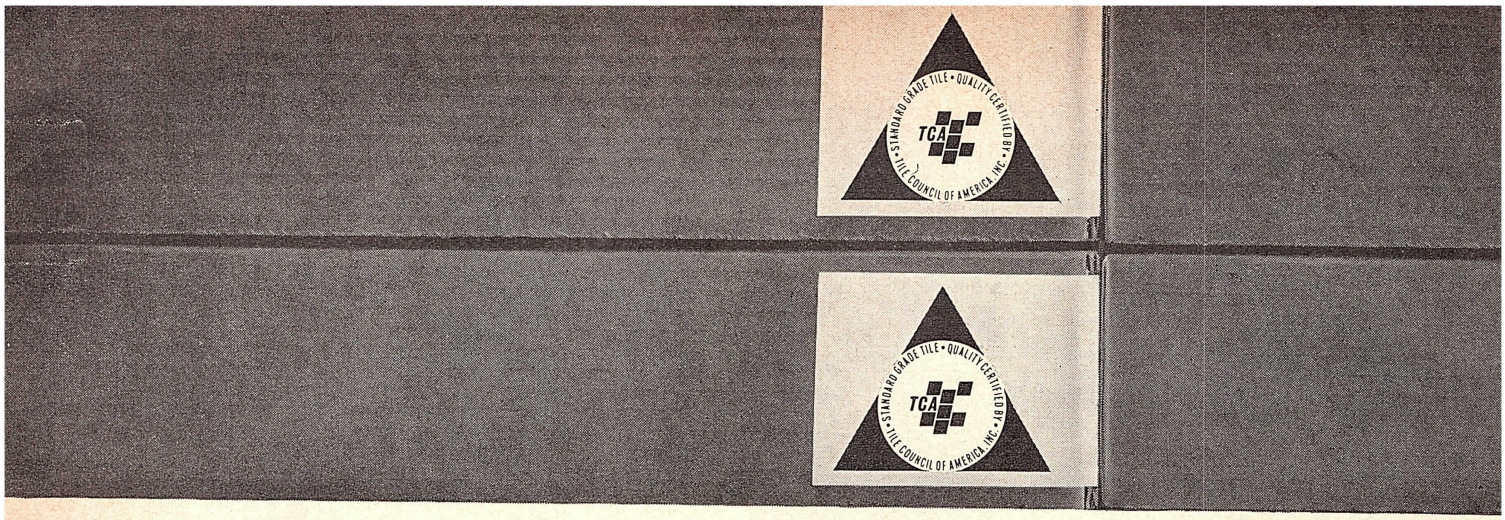
The Sealant comes in standard caulking cartridges and 5-gallon containers, in white, black, aluminum, neutral, translucent and 18 new colors.

●

For more information, contact a G.E. distributor listed on the opposite page. Or write: General Electric, Silicone Products Department, Section BG5149, Waterford, New York.

GENERAL ELECTRIC

For more data, circle 149 on Inquiry Card



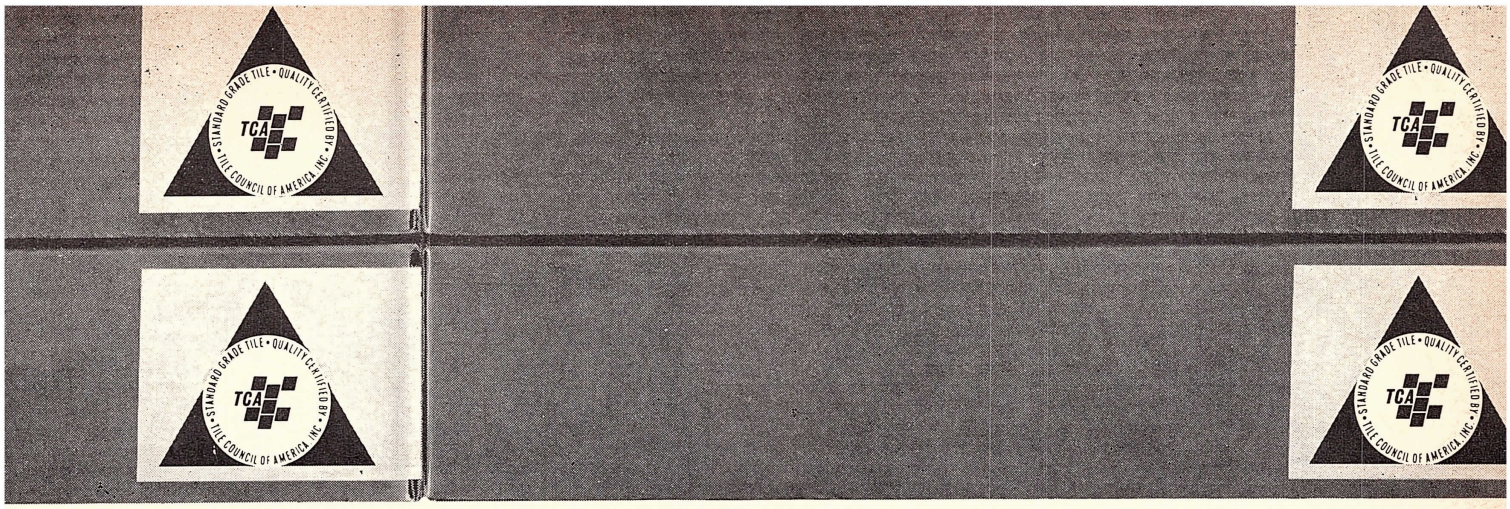
What do you do with Ceramic Tile bearing this mark...

Announcing A "Certified For Ceramic

You're an architect, not a watchdog. And the Tile Council of America knows it. That's why we've developed the "Certified Quality" program. It means this: you can now specify ceramic tile with *complete* assurance of quality. Tile to tile. Carton to carton.

Here's how it works. Tile produced by partici pating companies now undergoes inspections by a independent laboratory. The quality standards suc tile must meet are the highest ever set for th industry. These standards are published by th government in SPR R61-61 and in Federal Speci

MEMBER COMPANIES: American Olean Tile Co., Inc. • Atlantic Tile Manufacturing Co. • Cal-Mar Tile Company • Cambridge Tile Manufacturing Co. Carlyle Tile Company • Continental Ceramic Corporation • Florida Tile Industries, Inc. • General Tile Company • Gulf States Ceramic Tile • Highland Tile Company • Huntington Tile, Inc. • International Pipe and Ceramics Corporation • Jackson Tile Manufacturing Co. • Jordan Tile Manufacturing Co.



Specify it!

)uality" Program
Tile

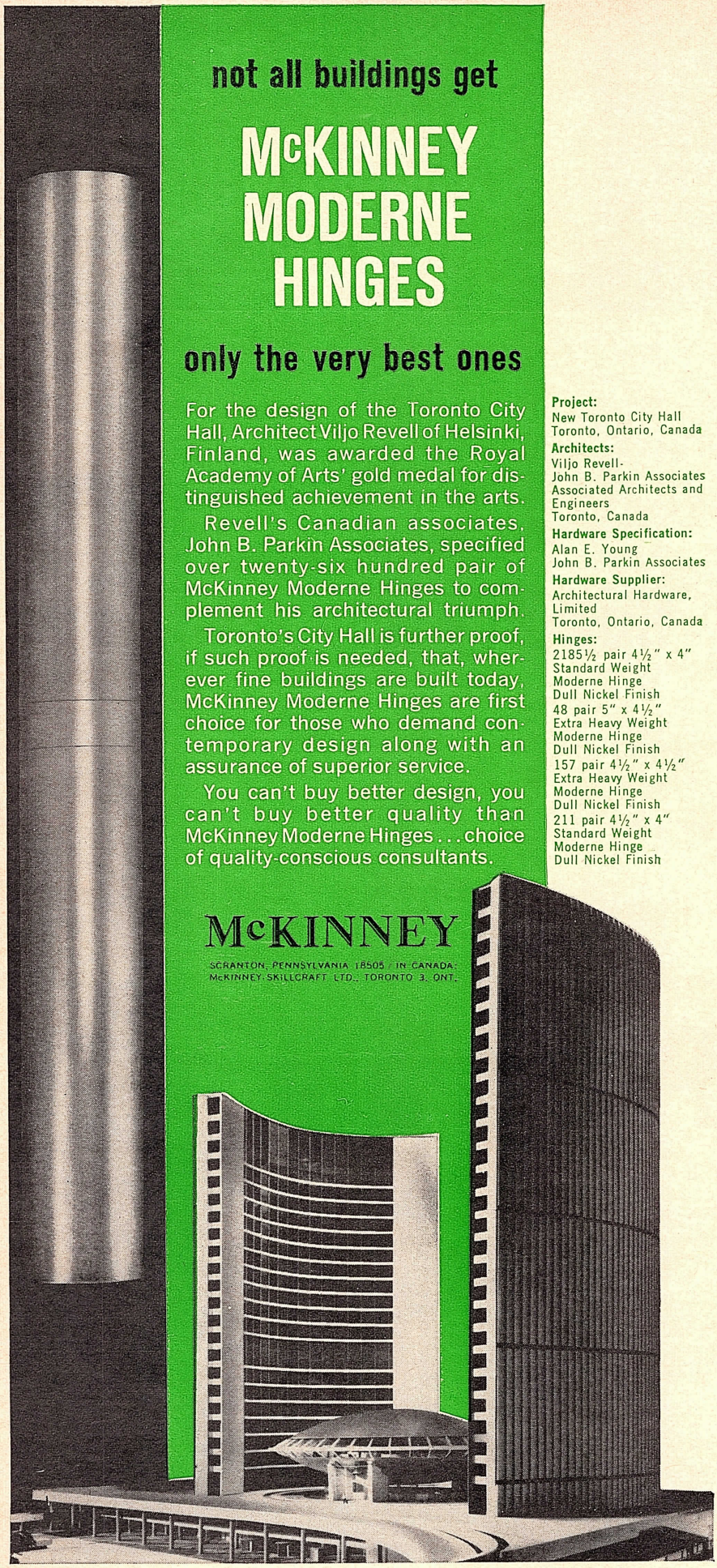
ıtion SS-T-308b. You can be confident that, with-
: exception, Certified Tile will now meet these
ndards.

So why take chances? Be sure to specify that "...tile
.ll be Quality Certified by the Tile Council of
ıerica." We put our reputation on it. You can too.

Tile Council of America INC.
800 SECOND AVENUE • NEW YORK, N.Y. 10017

Lone Star Ceramics Co. • Ludowici-Celadon Company • Mid-State Tile Company • Monarch Tile Manufacturing, Inc. • Mosaic Tile Company • Oxford Tile Company • Pacific Tile Company • Pomona Tile Manufacturing Co. • Redondo Tile Company • Ridgeway Tile Company • Sparta Ceramic Company • Stylon Corporation • Summitville Tiles, Inc. • Texeramics Inc. • United States Ceramic Tile Co. • Wenczel Tile Company • Winburn Tile Manufacturing Co.

For more data, circle 150 on Inquiry Card



For more data, circle 151 on Inquiry Card

Product Reports

continued from page 270



PORTABLE DRAFTING TABLE

The *Little Moonlighter* portable drafting table has a board of basswood for even texture, and a frame of lacquered red oak. A "wing nut" arrangement allows the position of the board to be adjusted for individual comfort. The unit can be folded for easy moving or storage. *Frederick Post Company, 3650 North Avondale Ave, Chicago, Ill. 60618*

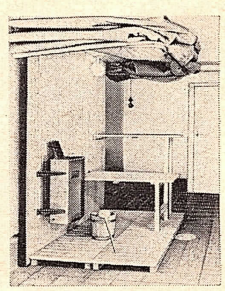
CIRCLE 316 ON INQUIRY CARD

FOLD-AWAY SAUNA

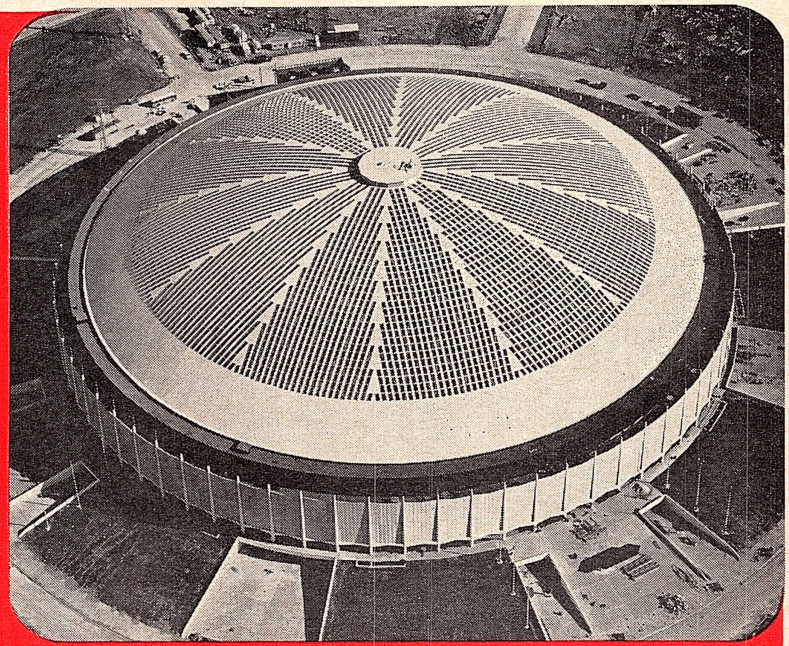
Imported from Sweden, the *Sauna-Flex* sauna bath has walls of nylon-reinforced fabric which are well insulated and flexible and can be hoisted up to, and lowered from, the ceiling with a crank attached to the ceiling. When not in use, benches and floor boards fold to the wall, leaving the space clear for other uses. The heating unit is said to be quick and easy to install and can operate on all types of current—110,208, or 220 volts. The *Sauna-Flex* is 84 in. long, by 49 in. wide by 90 in. high. *S.U.S. Imports-Exports, 255A Henry St., San Francisco, Calif.*

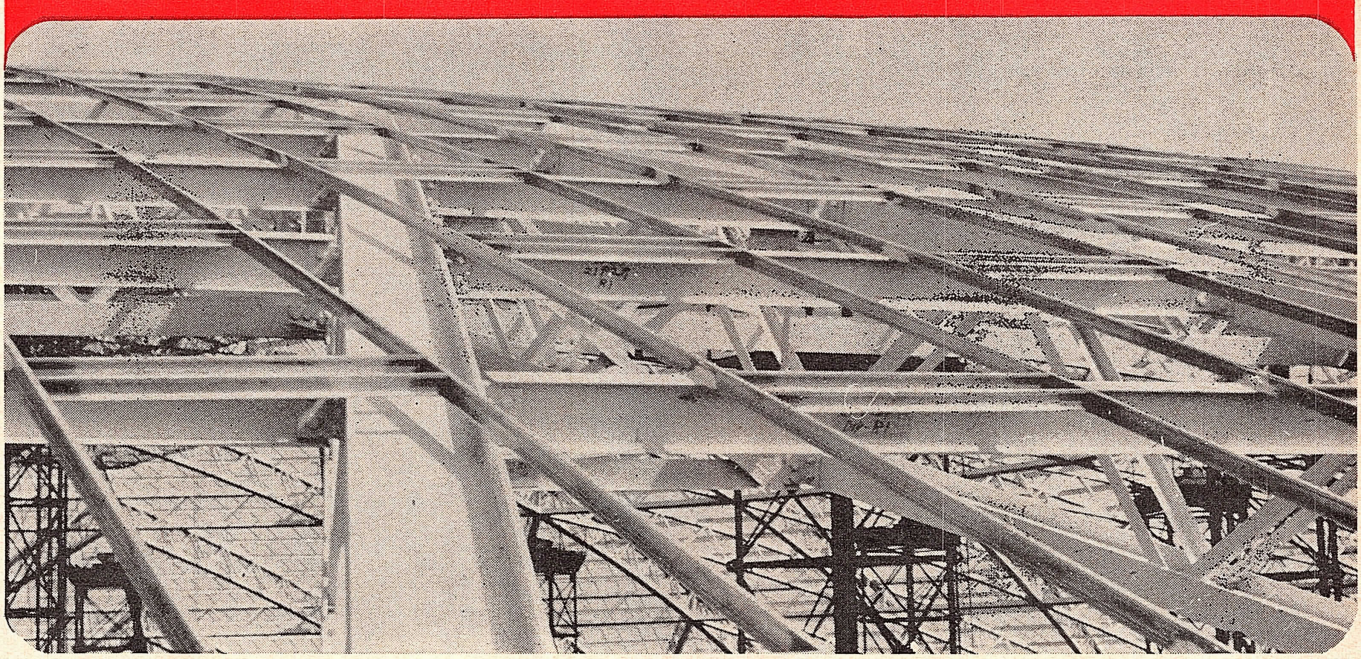
CIRCLE 317 ON INQUIRY CARD





ZINC GALVANIZED STEEL VS. CORROSION IN HOUSTON'S NEW DOMED STADIUM





From the soaring dome above, to the drains in the earth below—in many key places throughout the new Houston stadium you'll find zinc guarding steel's strength against corrosion.

Zinc galvanized steel is used for the purlins and sub-purlins in the dome and welds were zinc coated. Asbestos bonded galvanized steel pipe is used in the drainage systems as well as galvanized iron. Casings for heating and cooling coils are galvanized steel as is high and low pressure ductwork. Galvanized pipe and connections are used in the water softening equipment.

As a structural material, zinc galvanized steel provides the most practical combination of strength, corrosion resistance and economy. This combination has been proven over and over again in many different structures from culverts and guard rails to skyscrapers. It's a good combination to keep in mind when specifying materials.

ST. JOE

ST. JOSEPH LEAD COMPANY

Producers of Zinc for American Industry

250 Park Avenue • New York, New York 10017

ZN-272

Acoustiroc

We think new about ceilings



Gold Bond Acoustiroc selected for New Town Center Federal Building

Over 260,000 square feet of fissured Acoustiroc tile was used to complement the excellent architectural detailing in this fine building. In addition, this foil-backed noncombustible tile keeps noise under control throughout the interior. Gold Bond Acoustiroc is made with an exclusive felting process that interlocks long mineral wool fibers—for 50% greater strength than ordinary mineral wool



New Town Center Federal Building, Hyattsville, Md. Architect: Edward Durell Stone, New York, N. Y. Developers: Bancroft Construction Corp., Hyattsville, Md. Acoustical Contractor: Standard Acoustics of Washington, D. C.

tiles. Acoustiroc offers exceptional sag resistance and dimensional stability. As a result, Acoustiroc can be installed during temporary high-humidity conditions—saving as much as a week in completion time for a builder. Available in many sizes and surface designs. Thinking about acoustical ceilings? Think new with Acoustiroc. Call your Gold Bond® Representative. Or write to National Gypsum Co., Dept. AR-55, Buffalo, N.Y. 14225.

Some of the many fine products that come from 40 years of thinking new.

Gold Bond®
ACOUSTICAL PRODUCTS

NGC
NATIONAL GYPSUM COMPANY

For more data, circle 152 on Inquiry Card

Courtesy of Marlborough-Gerson Gallery



Thinking marble?

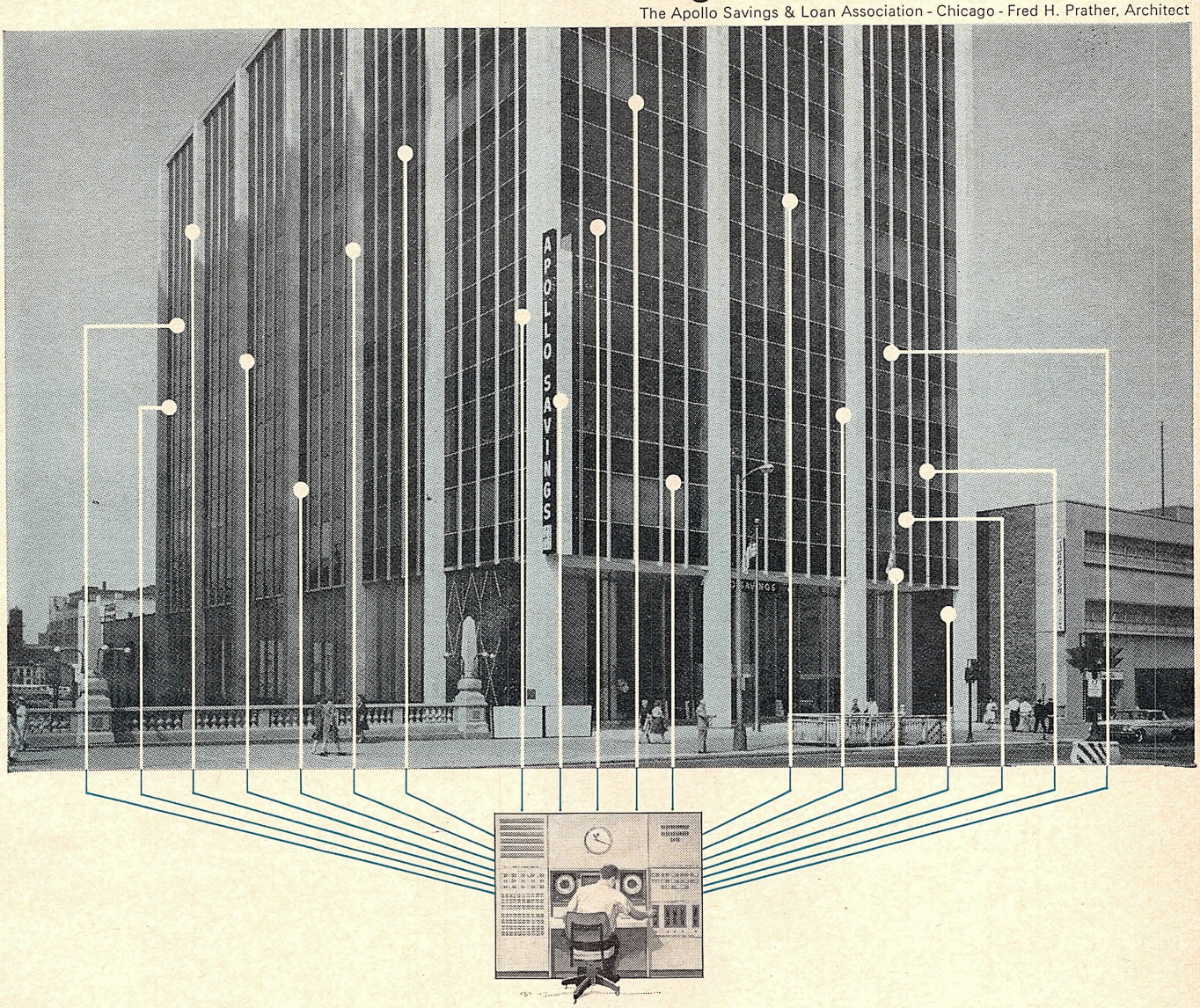
Dodge helps architects realize their ideas. The project information you give to your Dodge Reporter helps contractors and suppliers fit their skills and products to your requirements more accurately, at greater savings of everybody's time—and money.

McGraw-Hill DODGE REPORTS

For more data, circle 153 on Inquiry Card

Now! 1-man Building Control from Honeywell

The Apollo Savings & Loan Association - Chicago - Fred H. Prather, Architect



Sees, hears, records, reveals, checks, adjusts, alarms, remembers, analyzes, monitors, starts and stops,

And

pays for itself within 3 years

One man can control *any* building with a Honeywell Automated Control Center.

He sits at a compact control panel. From it he can control fire protection, clocks, security, temperatures, humidity and equipment. In fact, he can handle practically everything but maintenance and repairs without leaving his chair. Constant supervision replaces periodic inspections.

Only Honeywell can design, manufacture, install, guarantee and service *all* the equipment your clients need to control their buildings like this. Only Honeywell specialists can help you and your engineers coordinate the whole job. One source. One responsibility. Honeywell simplifies building control. We supply everything but the operator.



Send coupon for free booklet: ONE MAN BUILDING CONTROL BY HONEYWELL

Contains information on the operating economies and applications of automation in controlling all kinds of buildings. Send to Mr. W. N. Wray, Honeywell, Dept. AR5-128, Minneapolis, Minnesota 55408.

NAME

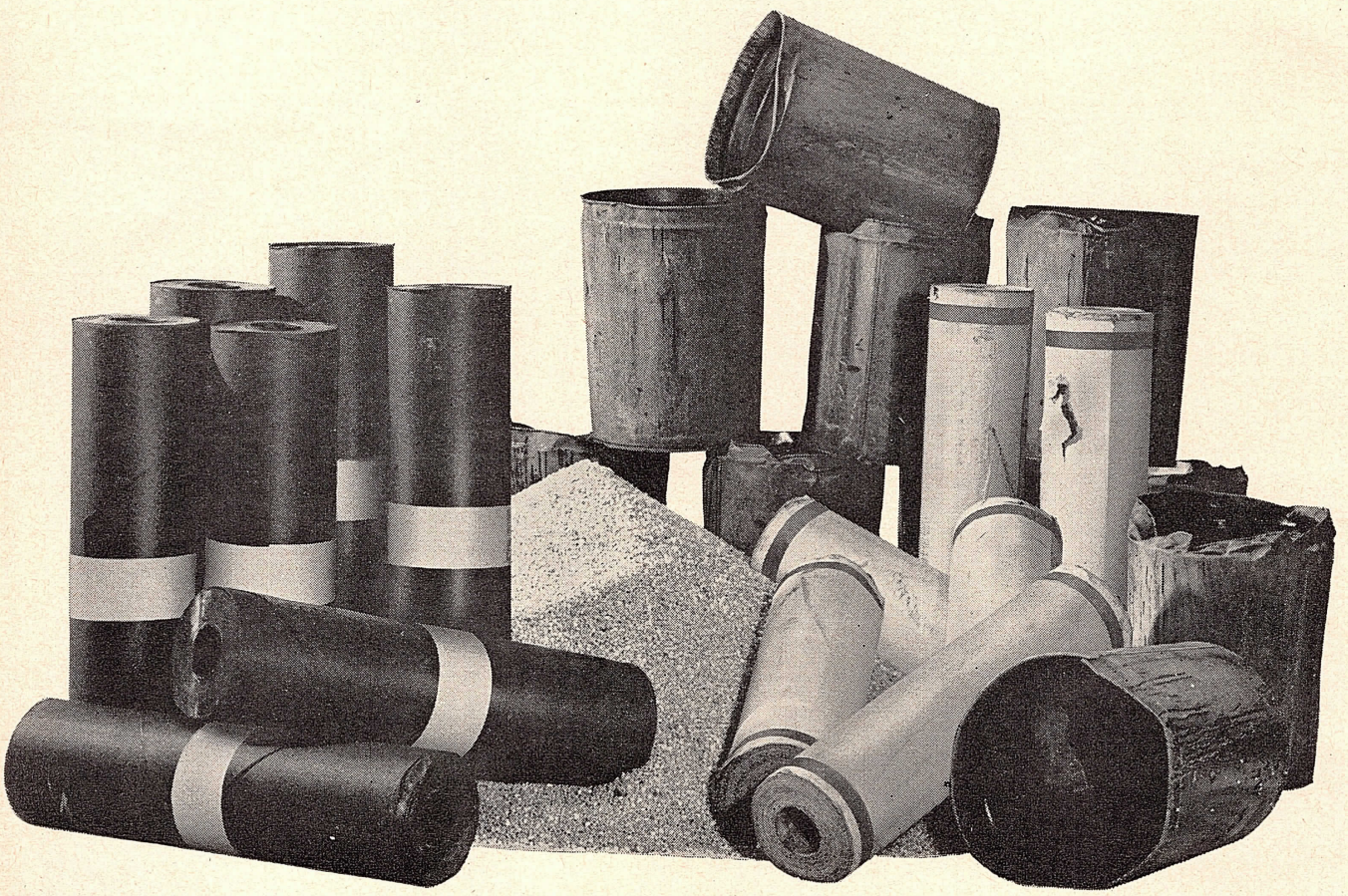
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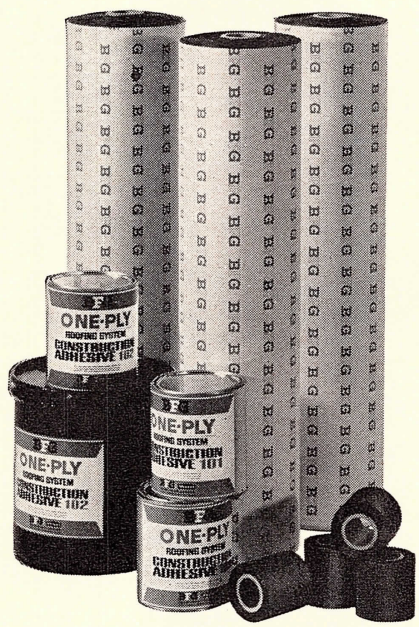
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CITY STATE

Honeywell



This will roof nine squares



. . . so will this

It's BFG ONE-PLY, a complete self-flashing roofing system from B.F.Goodrich. ONE-PLY is made of Hypalon* synthetic rubber backed with neoprene-bound asbestos. Black or white. It's rugged, durable, quickly and easily applied. For roofs of nearly any shape. Lightweight? Nine squares of 4-ply, gravel-surfaced conventional roofing, in place, weighs nearly three tons. Just 365 pounds of ONE-PLY will cover the same area. And ONE-PLY offers big savings in on-site handling and installation costs. Performance? So good it's guaranteed watertight . . . free from leakage . . . for five full years under normal conditions. Want complete information? Just write Building Products Department RE-12, The B.F.Goodrich Company, Akron, Ohio 44318.

BFG ONE-PLY ROOFING SYSTEM

B.F.Goodrich

*Du Pont's Registered Trademark

For more data, circle 154 on Inquiry Card

Office Literature

continued from page 229

METAL WALL PANELS

The advantages of *Plasteel* protective coating for metal wall panels are set out in a new illustrated brochure. Details of the seven-coat protective system are given, as well as illustrations of buildings in which it has been applied. Specifications, erection procedure and a selection chart are also included. *Plasteel Products Corp., McAdam Ave., Washington, Pa.**

CIRCLE 412 ON INQUIRY CARD

STAINLESS TUBULAR PRODUCTS

A 52-page booklet gives detailed information on all aspects of stainless steel tubular products and includes an analysis of various grades of the metal, typical properties of the types and details of corrosion resistance. Charts, graphs and photographs are used to illustrate a section on the fabrication of stainless steel tubular products. *Allegheny Ludlum Steel Corp., Mellon Square, Pittsburgh, Pa., 15222*

CIRCLE 413 ON INQUIRY CARD

PLYWOOD IN CHURCH ARCHITECTURE

A 31-page booklet describes the use of plywood components as elements in modern church design. The booklet shows examples of finished church architecture in which large plywood components such as folded plates, curved and flat stressed skin panels, box beams and space planes have been used. *American Plywood Association, Tacoma, Wash.**

CIRCLE 414 ON INQUIRY CARD

CERAMIC TILES

Romany-Spartan ceramic tiles in a wide variety of applications are illustrated in a new colored catalog. Glazed wall tile, porcelain ceramic mosaics, glazed and unglazed ceramic mosaics, swimming pool tiles and conductive tile are among the many items illustrated. Several new patterns and colors are introduced. *US Ceramic Tile Company, 217 4th Street, N.E., Canton, Ohio, 44702**

CIRCLE 415 ON INQUIRY CARD

**Additional product information in Sweet's Architectural File*

more literature on page 286

more and more
great American architects
are using

MARMET

here are a few of the reasons:

Close liaison . . . between the architect's job captain, designers, the general contractor and MARMET's engineering staff, plant expediters and field service men . . . from the moment of bid award to final execution.

Single source capability. As an engineering fabricator of all types of curtain wall, individual window units, entrance frames and doors . . . MARMET is able to render complete services and products for every fenestration need.

Laboratory checks on quality control. Full size sections are pulled from assembly lines for exhaustive testing in MARMET test laboratories. Components must exceed NAAMM standards for wind deflection, air or water infiltration before shipment.

More and more . . . experienced architects find that specifying MARMET is a long step toward successful execution of all fenestration components.

Gracefully curved
curtain wall
presents
inviting face

FIRST FEDERAL SAVINGS & LOAN: Cincinnati

This circular structure with its open treatment of gleaming glass and aluminum presents its contemporary interior to passersby as well as customers conducting their "finance in the round". MARMET's Series 6342 and 6602 split mull grid systems were custom fabricated to the circular design. MARMET 2200 entrance sections and 1000 series doors were used to compliment the curtain wall.

MARMET
corporation

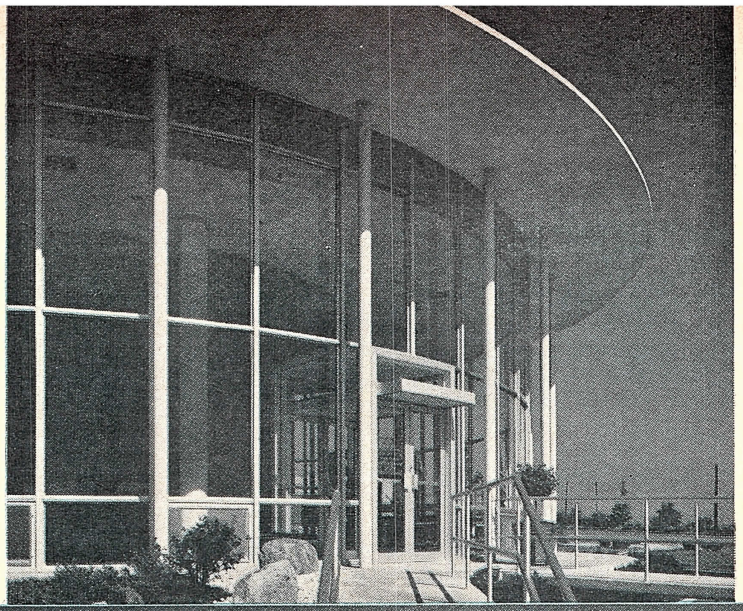
SWEETS CATALOG 3a MAR 16a MAR
OR WRITE MARMET

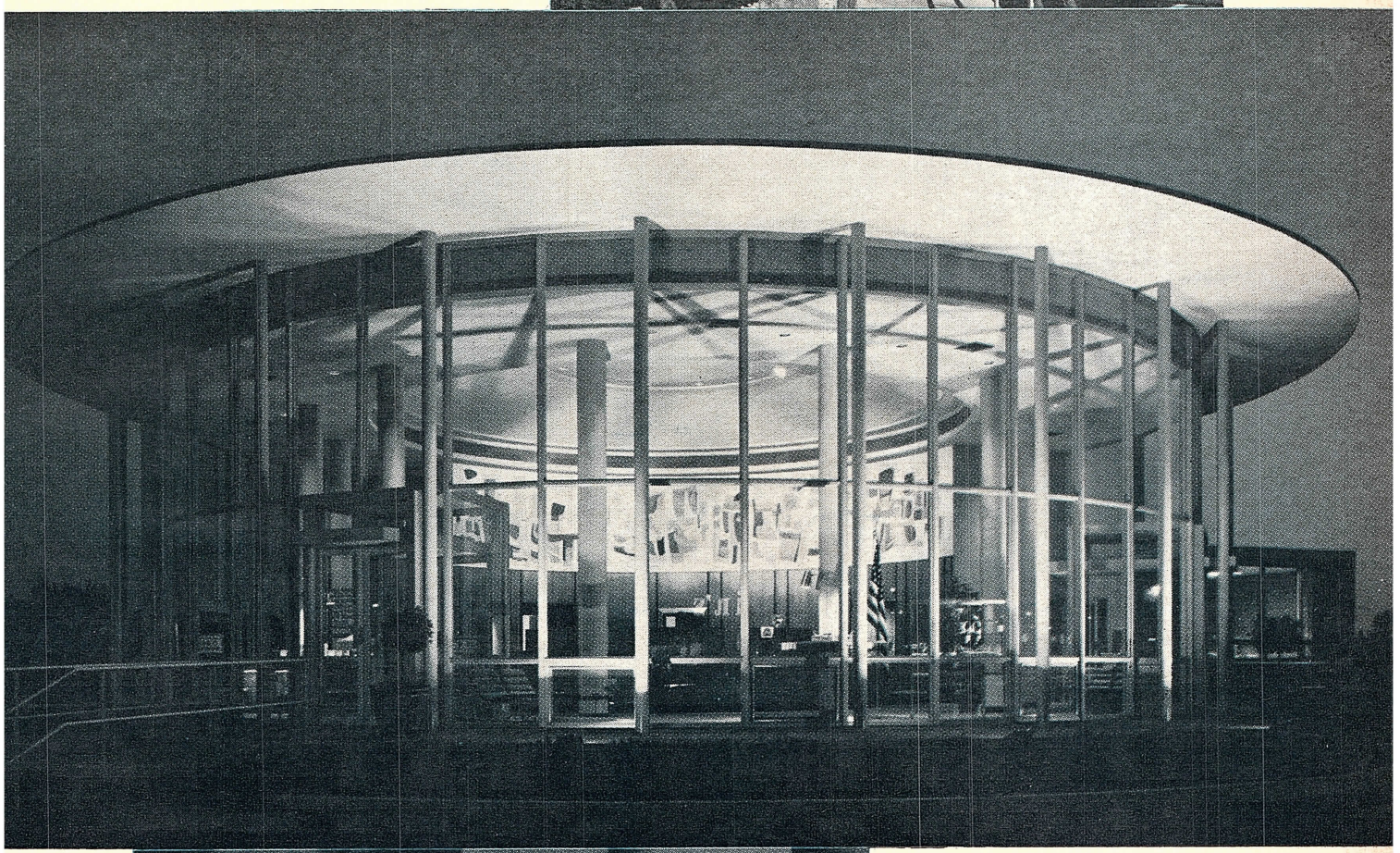
300-D Bellis Street
WAUSAU, WISCONSIN

For more data, circle 155 on Inquiry Card

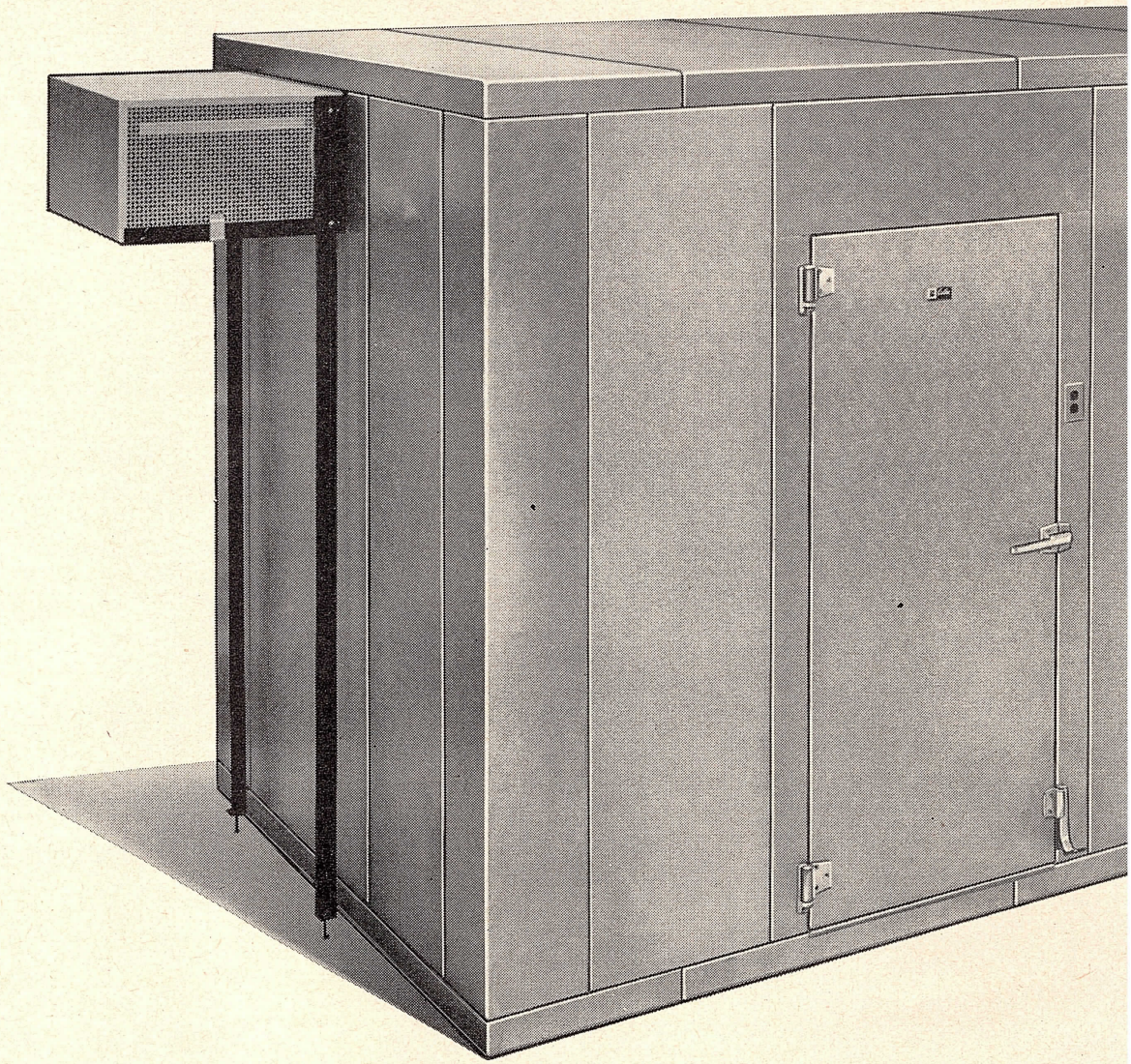
ARCHITECT:
L. P.
COTTER
AND ASSOCIATES
Cincinnati, Ohio

Fenestration
by
MARMET CORPORATION









Architects and Food Consultants insist on Bally for job after job. It is because Bally, America's largest producer of sectional Walk-In Coolers and Freezers, has introduced a new standard for Walk-In refrigeration that includes advantages never available in "built-ins".

Today, no other Walk-In has all of these important construction techniques and unusual features that eliminate the "or equal" problem in specifications.

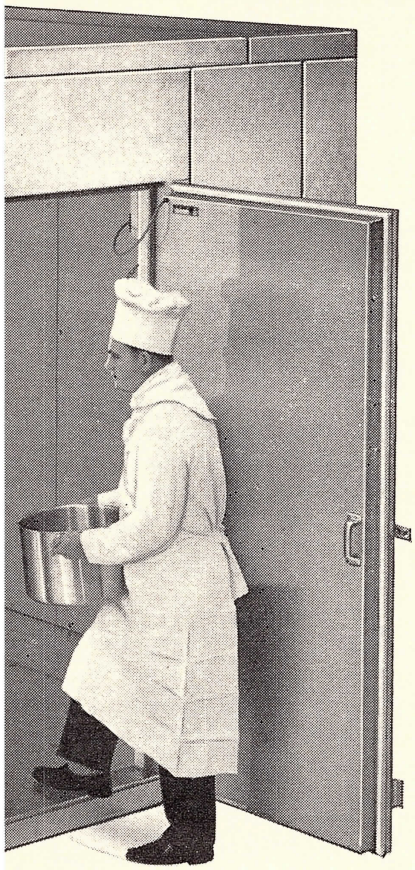
Urethane insulation 4" thick is foamed in place (not frothed). Has efficiency of 8½" fiberglass. Suitable for minus 40° F. temperature.

Assemble any size or shape from standard modular sections. Urethane has 97% closed cells and is ideal for outdoor use.

Superior section strength resulting from urethane foamed against metal skins eliminates need of wood structure. 100% of every section is hospital-clean insulation (no vermin or rodents).

Bally Speed-Lok fasteners join sections quickly and accurately. Unlock easily for enlargement or re-location.

Foamed lightweight door has self-closing hinges, modern hand lock (inside safety release) and convenient foot treadle. Opens and closes with feather touch. Magnetic gasket provides tight seal.



Bally walk-in refrigerators carry this hallmark of quality

It is our registered guarantee that specifications have been fulfilled with the highest quality workmanship and materials.

ɛtal interior and exterior provides maximum sanitaɲ. Your choice of hammered aluminum, galvanized el or stainless steel.

ɪrmetically sealed refrigeration systems self-conned, available for all size normal and low-temperature alk-Ins. Easy to install . . . reduce service problems.

ıss-produced and are lower in cost than "built-ins" ıstructed by building trades. Cubic-foot cost is less ın half that of "reach-ins".

ıen you specify a Bally there is never a need to accept "or equal" or a substitute. Bally Walk-Ins are availe to all dealers everywhere at uniform prices.

THIS CERTIFIES THAT
ARCHITECTURAL SPECIFICATIONS
HAVE BEEN FULFILLED

U.L. Approved N.S.F. Approved
FIVE YEAR WARRANTY
Registration No.
Bally Case & Cooler, Inc., Bally, Pa.

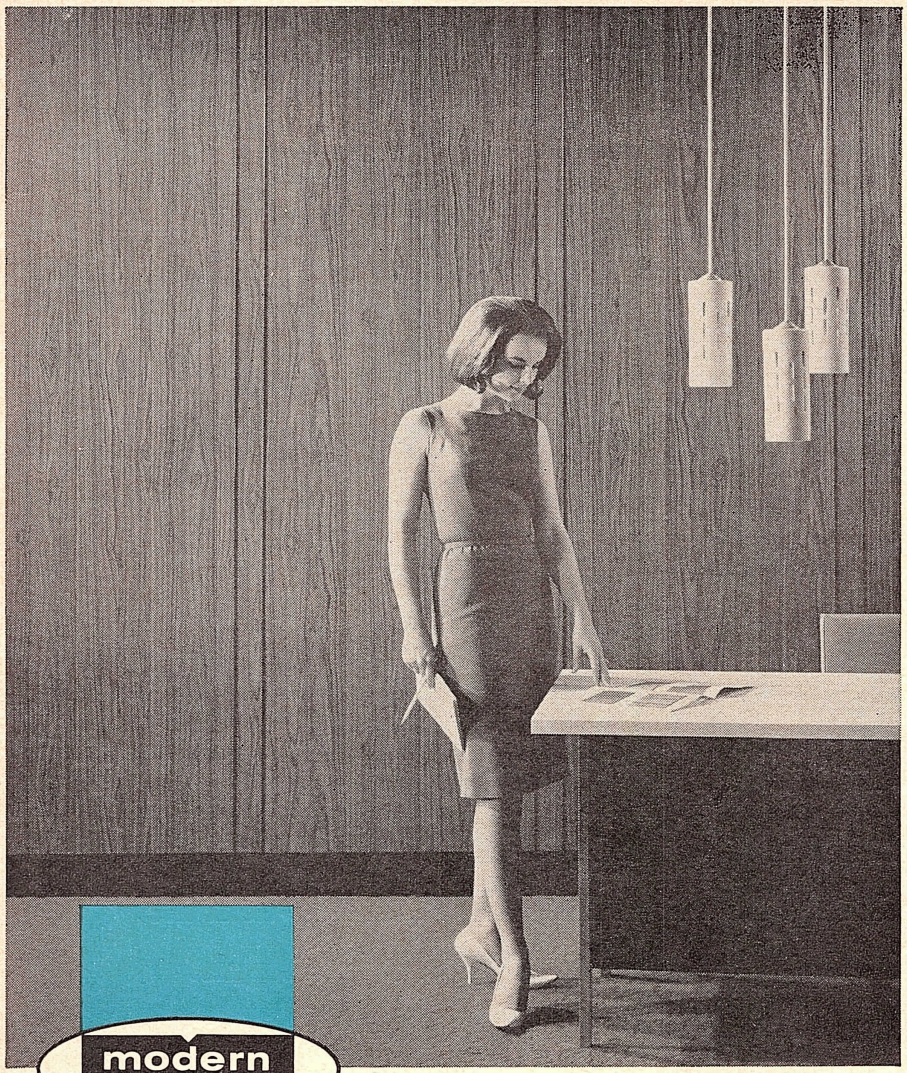
See Sweet's Architect File No. 25a/Ba

Write for Fact File including 12-page brochure, Specification Guide and Urethane sample. Learn about our on-the-spot engineering program that provides assistance in layout and specifying.

Bally

Bally Case and Cooler, Inc., Bally, Pa.

For more data, circle 156 on Inquiry Card



PARTITIONS, *plus*

The plus is a big one — surfaces of Videne, the polyester surfacing film made by Goodyear and applied with their technological capabilities to Modern wood panels. Result, partitions and wall panels of surpassing beauty and durability. Modern's Videne surfaces are dimensionally stable, they won't crack or chip, they're more wear-resistant than commercial wet finishes and plastic laminates. Available in four different systems for every commercial interior need — all in a choice of 16 superb wood grain finishes, 34 non-fading colors, and 6 striking design patterns.

Surfaces of* VIDENE *by GOODYEAR

For the complete story, write Modern for your copy of their new 24-page brochure in full color.

MODERN PARTITIONS INC. / Holland, Michigan 49423

For more data, circle 157 on Inquiry Card

Office Literature

continued from page 282

DOORS AND CURTAIN WALLING

Amarlite's five new 1965 catalogs are now available in a special colored jacket. The catalogs deal with entrances, store fronts, curtain walls, sliding doors, and the *La Porte* series of doors for commercial, institutional and domestic use. Detailed drawings are included in all the catalogs, which have as a new feature full color cover designs. *Amarlite Division of Anaconda Aluminum Company, P.O. Box 1719, Atlanta 1, Ga.**

CIRCLE 416 ON INQUIRY CARD

HIGH STRENGTH REINFORCING BARS

A 20-page booklet has recently been published which gives data on high strength reinforcing bars, including properties, applicable specifications, methods of splicing and ultimate strength design methods. The booklet shows typical applications of high strength bars in bridges, highways, office and apartment buildings, motels, stores, etc. A special booklet is enclosed with the brochure called "ASTM Specifications for Steel Bars for Concrete Reinforcements." *Committee of Concrete Reinforcing Bar Producers, American Iron and Steel Institute, 633 Third Ave., New York, N.Y., 10017*

CIRCLE 417 ON INQUIRY CARD

DRAINAGE FITTINGS CATALOG

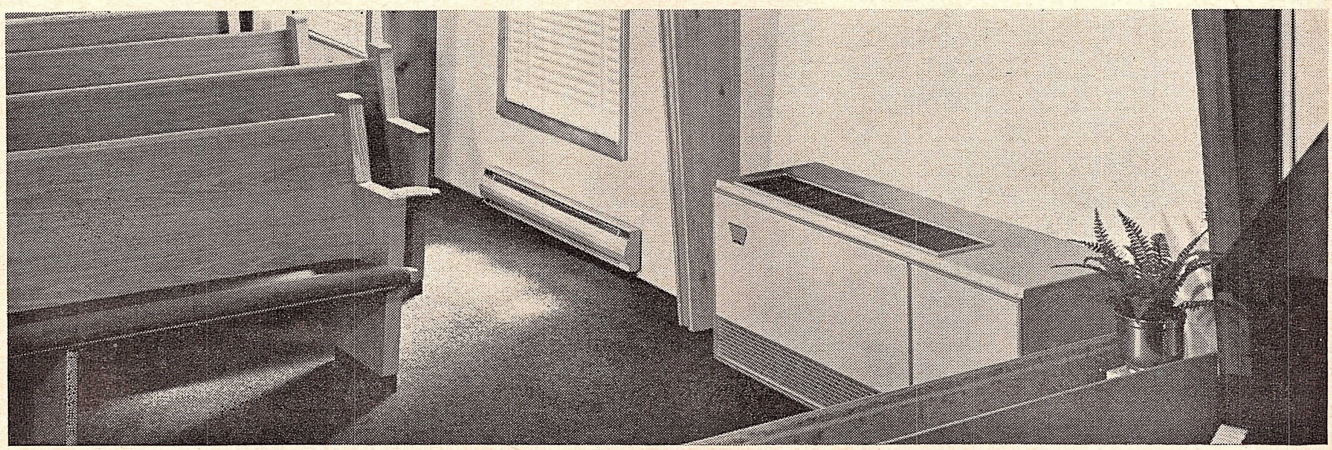
A revised catalog has just been issued on solder-joint drainage fittings in cast brass and wrought copper. In addition to information on the existing line of fittings, the 40-page booklet contains descriptions of items developed within the past year, including cast brass adapters, quarter bends, stack fittings, sanitary tees, double sink fittings, long turn or double T-Y's and compact patters. Information is also included on new wrought copper reducing couplings, repair couplings, fitting reducers fitting adapters, long turn elbows, test caps and closet flanges. *Anaconda American Brass Company, Waterbury, Conn., 06720**

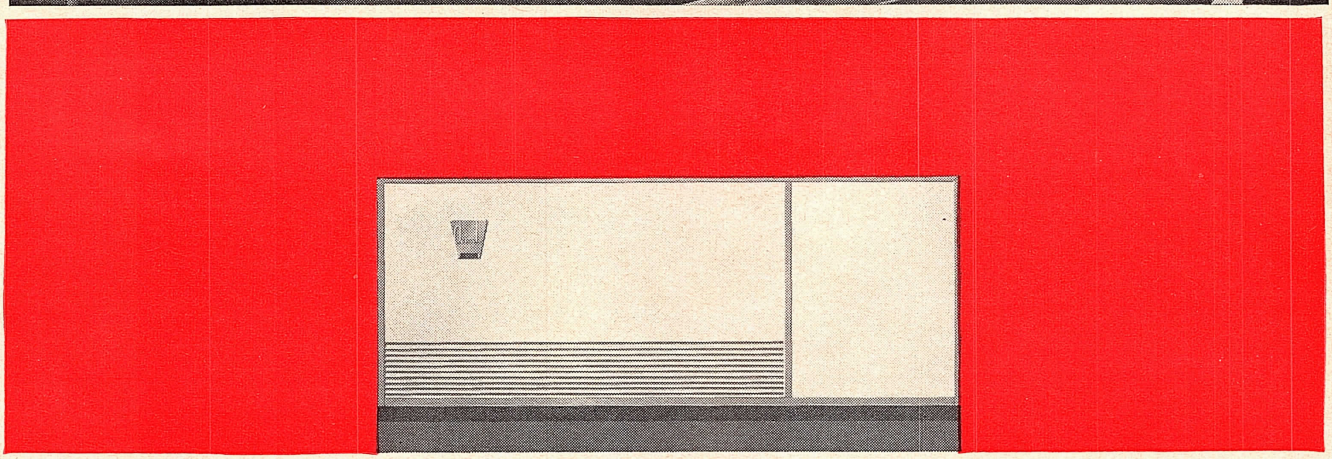
CIRCLE 418 ON INQUIRY CARD

**Additional product information in Sweet's Architectural File*

Specify Chromalox® Modulaire Type MD year-round electric, self-contained, air conditioner

for customed comfort heating □ cooling □ dehumidifying □ circulating □ filtering and ventilating □ **Cooling capacity:** 18,000 BTU at 95 F. outdoor temperature—air to air operation □ **Heating capacity:** Up to 6,000 watts (20,500 BTU) heating in four control stages. Optional connections available for additional 2000 watts flanking "Draft Barrier" heat. □ **Ventilation capacity:** 0 to 150 CFM. Setting made at factory per order □ **Supply voltage:** 208, 240 or 277 volts, single-phase, 60-cycle □ **Electrical protection:** 2 pole 40 amp circuit breaker (by others) □ **Evaporator fans:** 600 CFM at high speed, 550 CFM at low speed. □ **Evaporator coil:** 3-row staggered ½″ O.D. copper tube, corrugated aluminum fins, low 300 FPM face velocity for high humidity removal. Condensate evaporated to outdoors; no plumbing or drain lines needed □ **Dimensions:** Exterior cabinet 54″ long, 26″ high, 16¼″ deep. Wall opening 41″ long, 18⅛″ high □ **Mounting weight:** Approximately 400 lbs. □ **One Modulaire** for rooms 400—600 sq. ft. in area □ **Two Modulaires** (one Master and one Syncro) in typical classroom with 700—1000 sq. ft. area.





Chromalox Modulaire Type MD for new and existing classrooms □ churches □ restaurants □ laboratories □ larger offices □ libraries □ conference rooms □ other commerical and institutional applications. □ **Modulaire Type MJ** self-contained units for electrically heating and cooling smaller areas such as offices, utility rooms, etc.

WC-50A

CHROMALOX
electric HEATING/COOLING

EDWIN L. WIEGAND COMPANY
7741 THOMAS BOULEVARD, PITTSBURGH, PA. 15208

Tell me more about Chromalox Modulaire units:

- ☐ **Modulaire Type MD Bulletin F03100**
- ☐ **Modulaire Type MJ Bulletin F03102**
- ☐ **Have a Chromalox representative call me**

name, title

affiliation

address

city, state, zip

For more data, circle 158 on Inquiry Card

If you don't find the industrial lighting you need here...



it's probably on our drawing boards

Gentlemen: I am interested in receiving the following catalogs which I have checked below:

- ☐ Spartan Troffer Lighting
- ☐ Lumi-Flo® Air Handling Troffers
- ☐ Commercial Fluorescent Lighting
- ☐ Industrial Fluorescent Lighting
- ☐ Industrial Incandescent Lighting
- ☐ High-Bay Mercury-Vapor Lighting
- ☐ Protected Incandescent Lighting
- ☐ Floodlighting

Name_____ Title_____

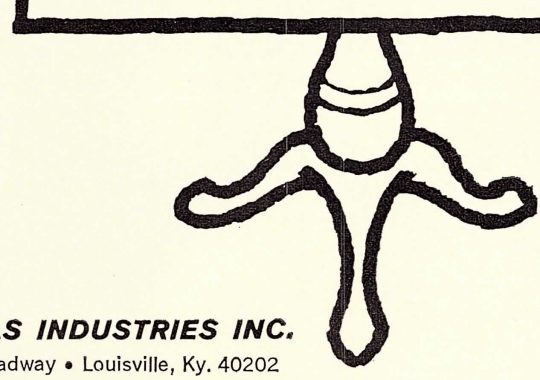
Company _____

Address _____

City_____ State_____ Zip_____

☐ Please have a representative call.

"STANDARD OF PREFERENCE AND PERFORMANCE"



BENJAMIN PRODUCTS

TJ

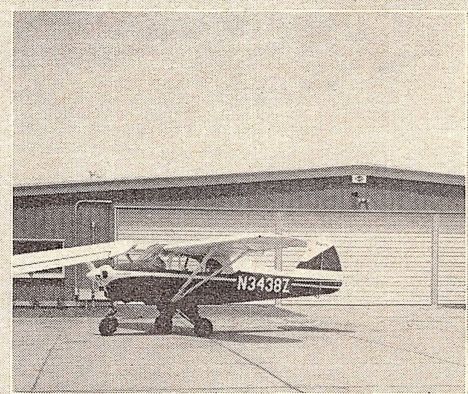
THOMAS INDUSTRIES INC.

207 E. Broadway • Louisville, Ky. 40202

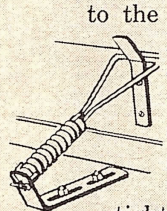
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Frantz Filuma® doors are better because...

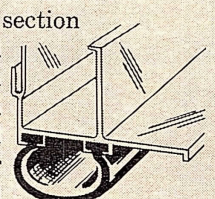




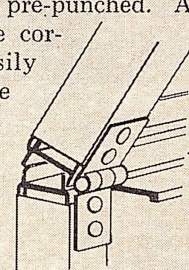
. . . Filuma garage doors are distinctively different and we have the patents to prove it. You need only to look at a cross section of this fiberglass/aluminum door to realize there is a difference. Notice the extra-heavy extruded, one piece, tempered aluminum rails . . . extra heavy to stand more abuse from the weather. Then try to find the rivets or screws holding the fiberglass panels in place. Give up? That's because there aren't any. A special pressure sealing process (patented) bonds the rail and fiberglass together in a stronger than riveted type of union. This adds greater strength to the door itself and eliminates any possible water entry. What about the fiberglass itself? It's the finest quality available and that distinctive moulded contour is a patented Frantz design. It does more than just look good though . . . the deep ribs add *strength* to the door.



Now about weather sealing. Again exclusive features make Filuma distinctively different. For instance this spring door holder automatically engages as the door is closed . . . snugs the top door section tightly against the head jamb to seal out drafts. Then there's our special vinyl cushion weatherstrip on the bottom rail that conforms to uneven floors for a weathertight seal. It's unaffected by oils and temperature change. (Our head and side jamb "Aluma-Seal" weatherstrip is optional equipment.)



Now that we've closed out the weather, how does Filuma operate? Like a dream. That's because Frantz uses hardware *specially designed* for the Filuma door. No odds and ends here! Filuma door frames are precisely pre-punched. All hinges and hangers are correctly located and easily bolted in place. All hardware has more than ample strength. Free rolling wheels and smoothly curved tracks provide easiest operation. Frantz designs and coils the springs used with Filuma doors for that "just-right" balance. Are Filuma doors versatile? Frantz builds *three* different models . . . Residential, Commercial, and Industrial . . . to fit every client need and budget requirement. And for that really wide opening, Frantz has a *moveable* center post. A center post that just rolls to the side. A center post one man can operate easily and quickly. A center post safety device locks the doors up in place as it's moved aside. And this center post has a telescoping joint that compensates for changes in the floor and building. (Another exclusive.) Yes, Frantz Filuma garage doors are distinctively different. See us in Sweet's or write:



FRANTZ
MANUFACTURING COMPANY
Department 22 • Sterling, Illinois
U. S. Patents No. 194094 and 3104699

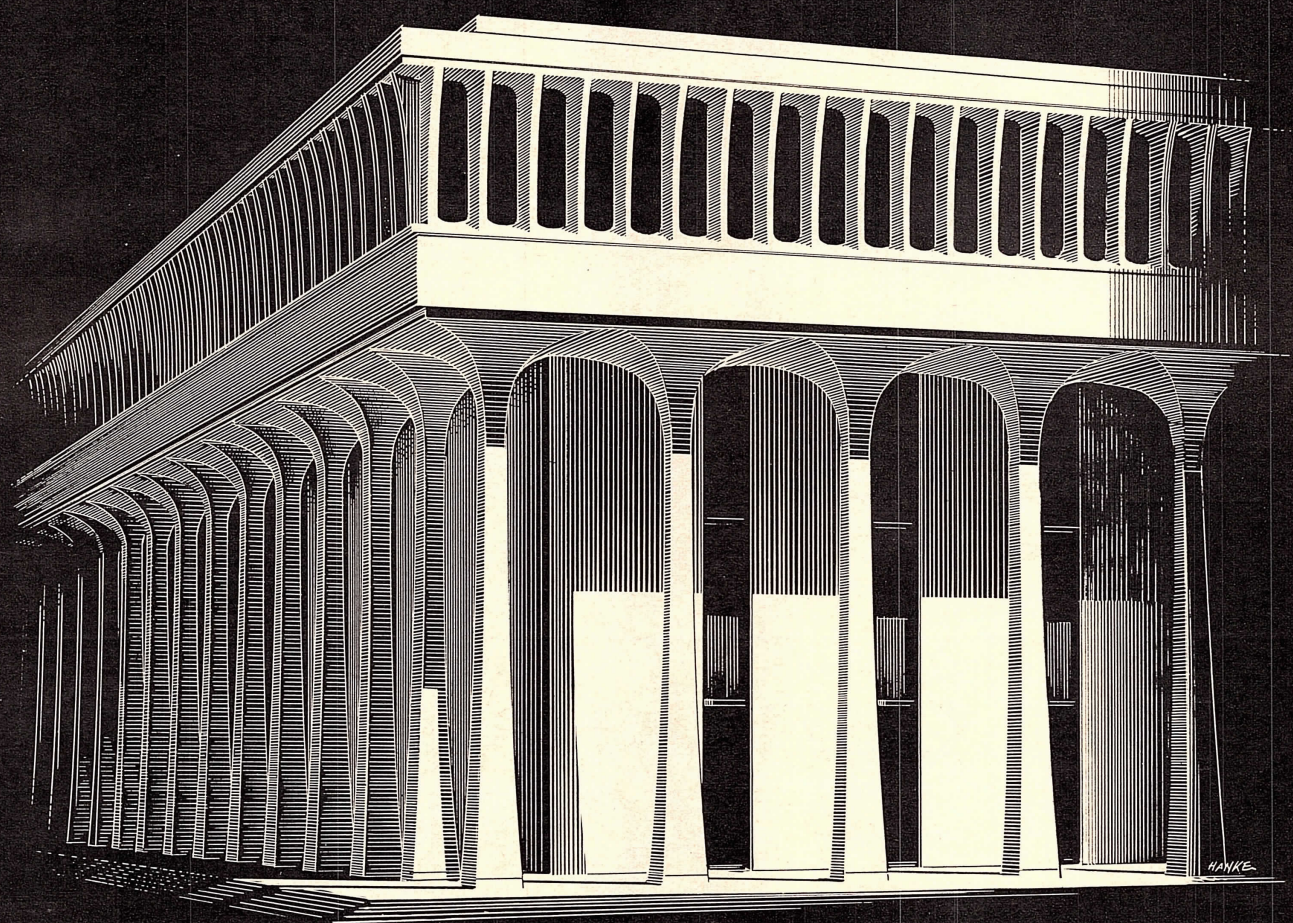
The Nation's Foremost Manufacturer of Fiberglass/Aluminum Garage Doors.

For more data, circle 160 on Inquiry Card

For more data, circle 161 on Inquiry Card

SCHOKBETON®

IS PROUD TO HAVE BEEN SELECTED BY THE ARCHITECTS, MINORU YAMASAKI AND ASSOCIATES, TO PROVIDE THE PRECAST CONCRETE FOR THIS MAGNIFICENT BUILDING



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Salt Lake City, Utah 84106

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CHURCHILL VALLEY COUNTRY CLUB, Pittsburgh. An 80-ton York "packaged" system cools ballrooms and dining rooms at this popular club. Ice for food and beverages is provided by four York Automatic Ice Makers. Owner, Beulah Road Land Company; Architect, Richard Benn; General Contractor, John Dinnocenzo; Contractor, Robert Youngerman Heating.

For a country club...

you can depend on YORK AIR

Relaxing or shopping, customers and workers alike appreciate the advantages of tempered, filtered air in every season of the year. That's why more and more leading architects and consulting engineers are specifying York, for buildings of every kind.

Advanced York Sunline units, for example, are mounted on the building roof, take no valuable floor space for equipment or fuel storage. Operating costs are low, too. A part of a building may be heated or cooled by using two or more Sunline units. One or more units may be shut down so only occupied areas are heated or cooled. This flexibility provides, in effect, zone control for any kind of building

When you specify air conditioning for any single-story building, check the many advantages of York Sunline rooftop units. They are available in a wide variety of capacities and types, with advanced features, such as low ambient cooling and cooling-only models. For complete specification data on York lines, contact your York Sales Representative. Or write York Corporation, subsidiary of Borg-Warner Corporation, York, Pennsylvania. In Canada, call or write National-Shipley, Ltd., Rexdale Boulevard Rexdale, Ontario.



EDGEWATER PLAZA SHOPPING CITY, Edgewater Park, Mississippi, is air conditioned by York equipment. Owner, W. L. Holcomb & Associates, Inc.; Architect, August Perez & Associates; Consulting Engineers, Salzer, Batt & Associates, Inc.; Mechanical Contractor, Bruns M. Myers, Jr., Jackson, Mississippi.

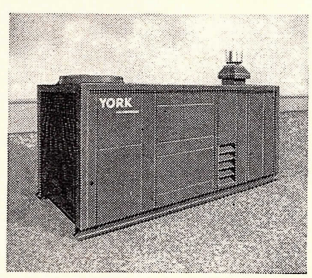
or a shopping center...

CONDITIONING

YORK®

air conditioning and refrigeration

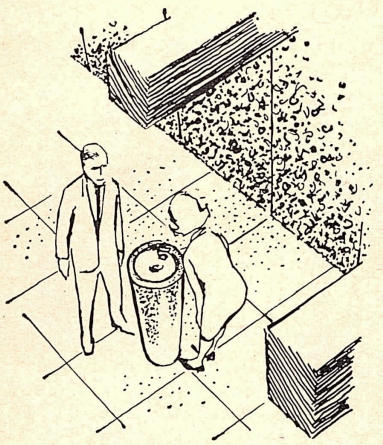
BORG WARNER™



York Sunline units available in four basic models, with cooling capacities from 60,000 BTU/HR to 178,500 BTU/HR. Heating capacities from 150,000 BTU/HR to 400,000 BTU/HR. Low ambient cooling models are available in many sizes.

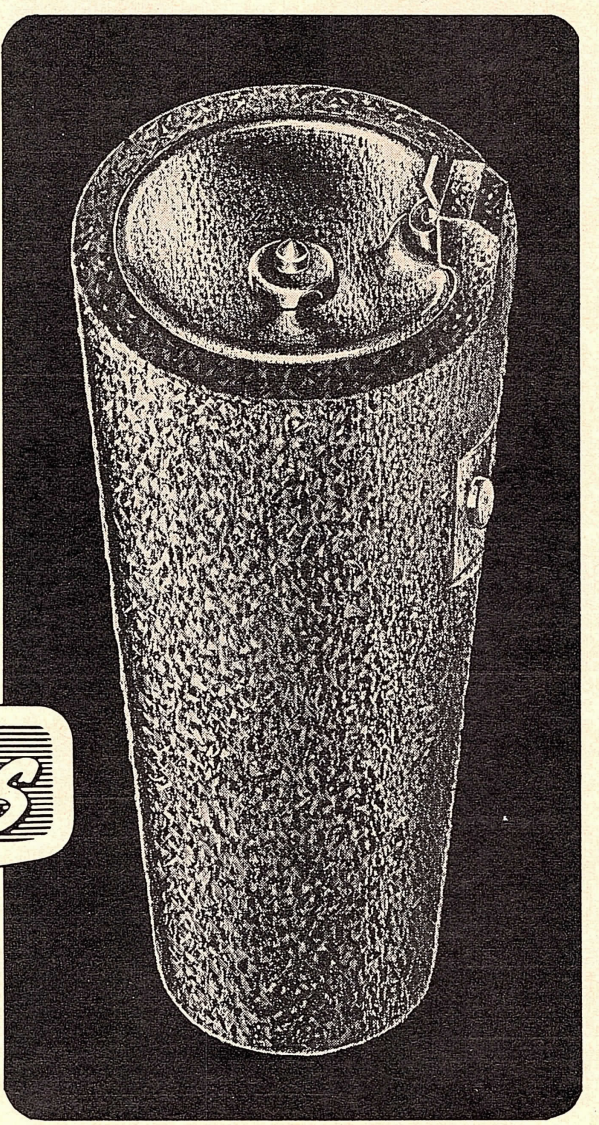
For more data, circle 162 on Inquiry Card

HAWS
model 30



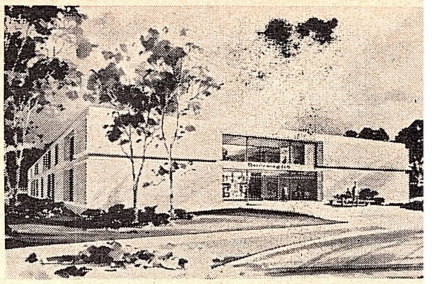
Opens the door to imagination. The natural concrete aggregate fits so naturally with new construction design—and Haws Model 30 comes in 3 varied grades of finish... heavily exposed aggregate, light sandblast, or smooth. Built-in life insurance, too: hidden reinforcing steel makes it indestructible, without obscuring the good looks. Stainless steel bowl, kid-proof push-button and the satin chrome plated bubbler also resist malicious tampering. Get the specifications today on the Model 30 indestructible fountain. Write **Haws Drinking Faucet Co., 1449 Fourth Street, Berkeley, California 94710.**

concrete ideas in fountains



HAWS
Since 1909

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OFFICE BUILDING HAS INNER PATIO

A district office building for the Bur roughs Corporation in Lexington Massachusetts, designed by Abrahan W. Geller, architect, of New Yor City, is in the process of construction Resident architects are the Archi tect's Design Group, Boston, Massa chusetts. General Contractor is th Trinity Construction Company.

The deep brown brick and precas concrete facade at the front of th building is broken only at the en trance level and the data processin room above. Visibility extends fror this room and the upper lobby to landscaped patio at the center of th building.

EKISTICS SEMINAR IS SCHEDULED

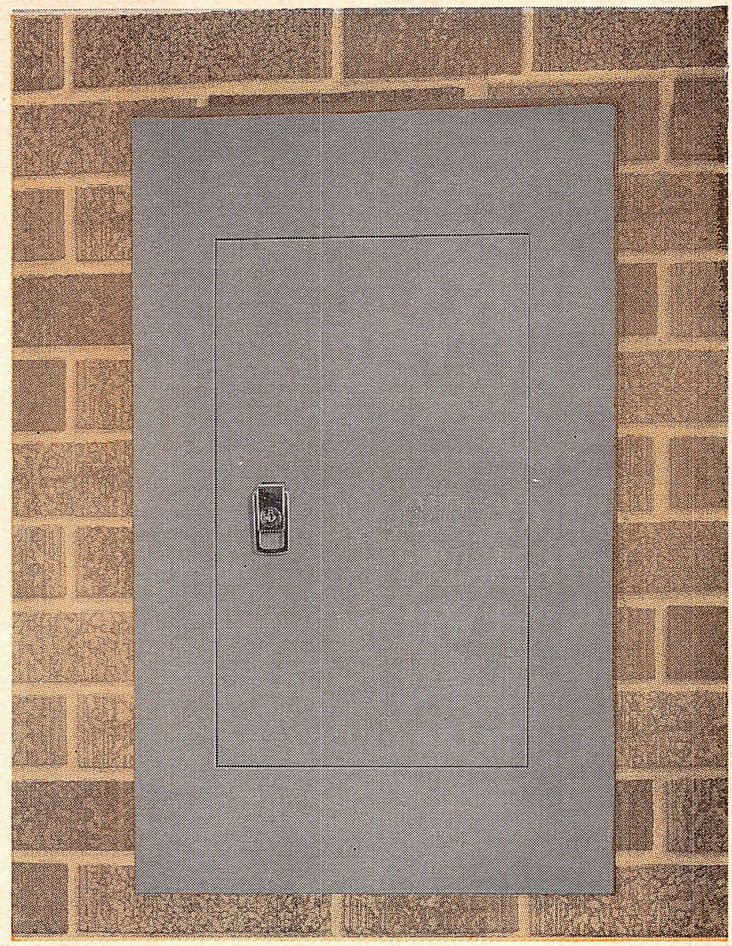
An International Seminar on Ekis tics and the Future of Human Settle ments, the first of an annual series will be held in Athens, Greece, fror July 20-24. The major theme of th 1965 session will be: "Human Settle ments: The Ekistic View." The con ference is organized by the Graduat School of Ekistics in Athens.

The sub-themes of the conferenc will be "Man and His Settlements" "The Century Ahead"; and "Th Human Community". The conferenc will provide an opportunity for inte disciplinary exchange and discus sions on the growth and change c human settlements.

The seminar will be conducted i English and those expected to pa ticipate include C. A. Doxiadis, F Buckminster Fuller, S. Giedion, Les ter B. Granger, Edward T. Hall, Si R. Matthew, Harvey S. Perloff, A. J Toynbee, C. H. Waddington an Barbara Ward (Lady Robert Jack son).

from Square D—

NEATER APPEARANCE



Completely Concealed Trim Clamps
and Hinges on Standard Panelboard Fronts—

AT NO EXTRA COST!

Until now, panelboard fronts like the one above were built only on special order. They cost more and it took longer to get them. Even then, only the hinges were concealed. Now, in this new lighting panelboard cabinet, both hinges and trim clamps are completely concealed. No extra cost . . . and prompt delivery from stock!

This new design gives you more than new eye appeal. It is the only design which can be locked for positive security because the panelboard front cannot be removed while the door is locked.

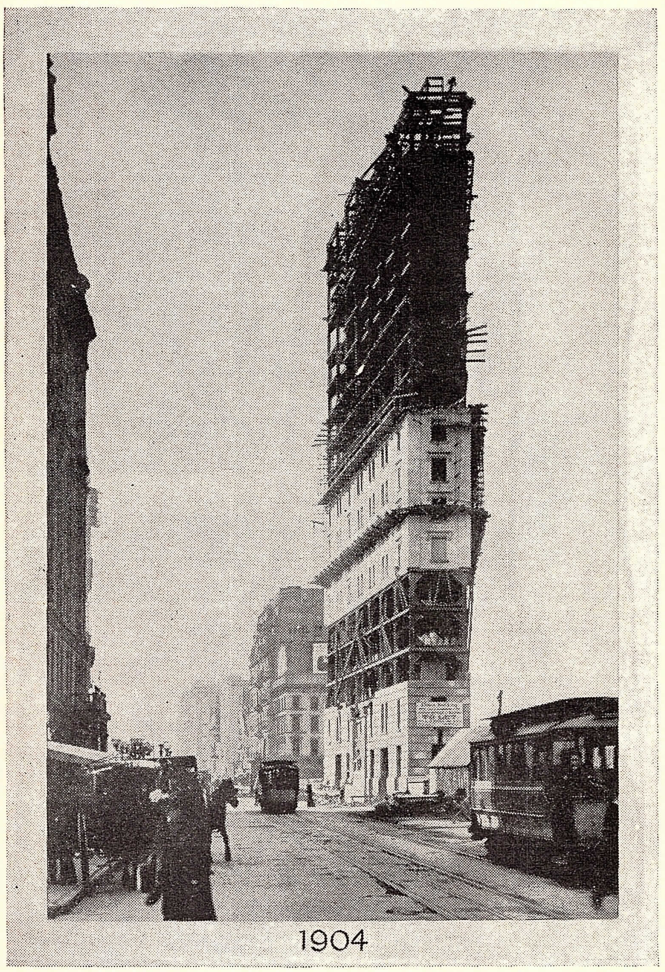
Square D sells more panelboards than any other manufacturer. This latest design innovation adds significant strength to that position of leadership.

GET THE COMPLETE STORY *from your Square D Field Office*
Or write Square D Company, Mercer Road, Lexington, Kentucky 40501

SQUARE D COMPANY

products sold through Square D electrical distributors everywhere

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1904



1963

When its 3700-ton steel framework was erected in 1904 by American Bridge, the Times Tower was the tallest building in New York. Plenty of later buildings dwarfed the 24-story skyscraper, but few ever matched the fame the Times Tower gained from the electric news sign that flashed around its circumference and was seen daily by a million and a half people.

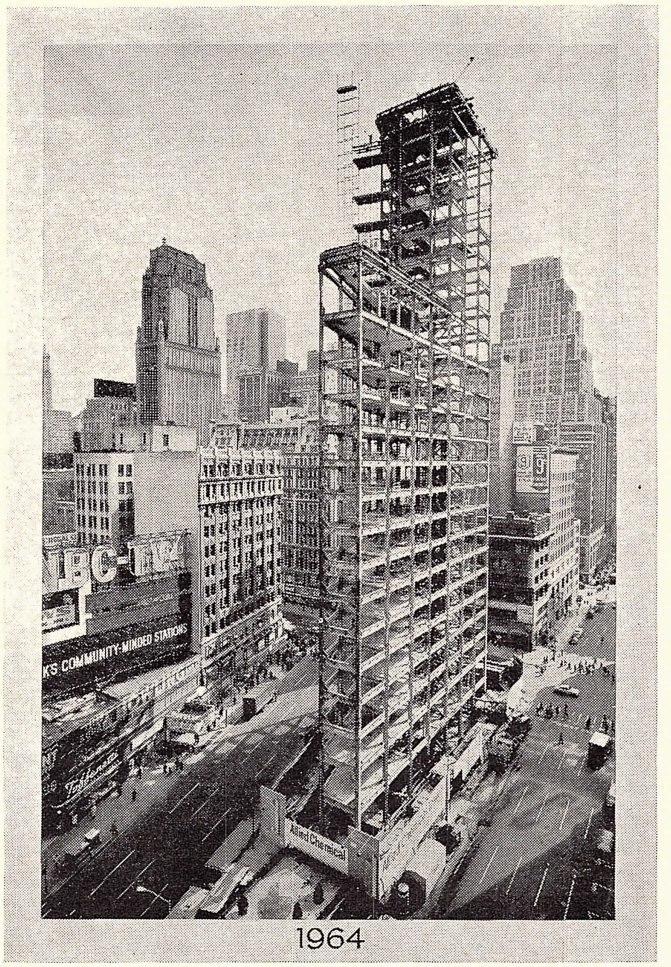
Regardless of fame, the old Tower outlived its day and was sold to Allied Chemical Corporation, which wanted "the crossroads of the world" as the site for its chemical showcase. Allied needed a building that not only *looked* modern, but one that could accommodate modern space and equipment needs. At the narrow Times Square corner, Allied planned a giant 10-story exhibit window. The service core needed enlargement; more stairs were required; partitions needed moving; floors and plumbing needed replacing; modern air conditioning had to be installed.

If the old Times Tower had been built of anything but steel, it would have been necessary to tear down practically the entire building. But instead of starting from scratch, Allied is dismantling virtually *everything but the steel skeleton.*

Although built by methods no longer used, the 60-year-old frame is still structurally sound, with more than enough built-in strength capable of handling the heavier demands of modern office use. Even at the giant window—where all beams between the 4th and 14th floors were removed—it was relatively easy to restructure the wind-

New skin, new guts, new name

. . . same steel skeleton





bracing system by transferring to adjacent columns. (Architects said they probably wouldn't even have attempted the window if the building were concrete.) The *only* corrosion that engineers found in the framework were slight spots on two columns, and these were so minor that no corrective measures were required. If the same building is remodeled 60 years from now, chances are it will be built around the same steel skeleton American Bridge erected in 1904.

Steel construction *always* makes remodeling less expensive, because *only* steel can safely be severed, extended, or bolstered without damaging a building's structural integrity. Steel construction is even more of a bargain now than it was 60 years ago. New high strength structural steels cut costs and weight, because they are two to three times stronger than carbon steels. Rolled structural shapes replace old-fashioned built-up members, and weldable steels make bracing and fastening much simpler. New concepts, such as the combination of steels of different strength levels, facilitate architectural expression as well as cut costs.

American Bridge technical representatives will be glad to discuss your building and remodeling problems. Write: American Bridge Division, United States Steel, 525 William Penn Place, Pittsburgh, Pa. 15230.

Architect—Engineers: Smith Smith Haines Lundberg and Waehler. (Original Times Tower was designed by Eidlitz & McKenzie from which the firm Smith Smith Haines Lundberg and Waehler was derived.) General Contractor: William L. Crow Construction Company. Structural Engineers: Purdy & Henderson Associates, Inc.

USS TRADEMARK

American Bridge Division of United States Steel

For more data, circle 165 on Inquiry Card

REGAL® EPLO

tamper-proof, easy-to-install

MIRROR FRAMES

in stainless steel or extruded aluminum



Here are mirror frames with a clean stylish look to blend with today's modern architecture, and offer tamper-proof protection.

Regal frames are ideal for all types of public buildings: schools, hospitals, restaurants, offices and factories . . . perfect for security-type institutions and ends the nuisance of theft in public facilities. Regal frames are easily mounted. After the hanger frame is installed, the mirror framing slips into place and is locked automatically and securely in place.

STAINLESS STEEL
Consists of a reinforced frame and a special hanger with built-in spring locks . . . Has no screws or exposed fasteners. Stock sizes are 16 x 20, 16 x 22, 18 x 24, 36 x 24 and 48 x 24. Other sizes up to 12 feet are available. Finishes are satin or polished. Tamper-proof steel shelving and accessories are also available.

EXTRUDED ALUMINUM
Heavy duty extruded frames are precision mitered and double reinforced with extruded corner keys. Special interlocking brackets and hangers make installation perfect and easy. The magna-lok feature secures the frame to wall without exposed screws or bolts — makes the unit tamper-proof. Available in all sizes. Finishes are buffed, polished and brush satin in anodized natural and anodized gold. Matching extruded aluminum, tamper-proof shelving is available.

See your jobber, or write direct to:

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FOR WALKS, DRIVEWAYS, RAMPS, PARKING LOTS, STEPS, ETC.

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SEECO-HEAT Mats, same as Snow*Mats except for lower wattages, are perfect to remove dampness and chill from concrete floors in basements, garages, bathrooms, kindergartens, etc.

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FARMINGTON CONNECTICUT

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For more data, circle 167 on Inquiry Card

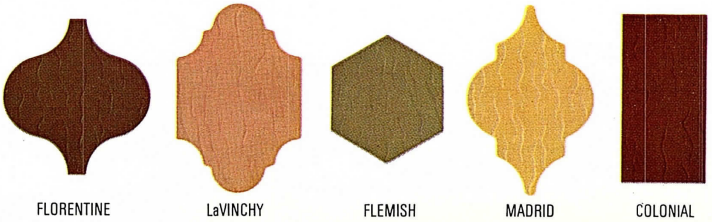


Contour Quarry tile

Summitville extruded Contour Quarry Tile offers a floor of classic elegance while retaining all of the advantages found only in extruded ceramic tile . . . highest resistance to wear, stains, scratches, water, impact, dents, weather and abrasion as well as providing initial and long-range economy.

Contour Quarry Tile is available in six natural quarry tile colors, in the four designs illustrated. These designs plus 6 x 6 x ½ and 4 x 8 x ½ are also available in 5 colors of an exclusive textured antique floor glaze. Your ceramic tile contractor or Summitville Rep has the full story.

UNRETOUCHED PHOTO OF CONTOUR TILE INSTALLATIO



FLORENTINE LaVINCHY FLEMISH MADRID COLONIAL

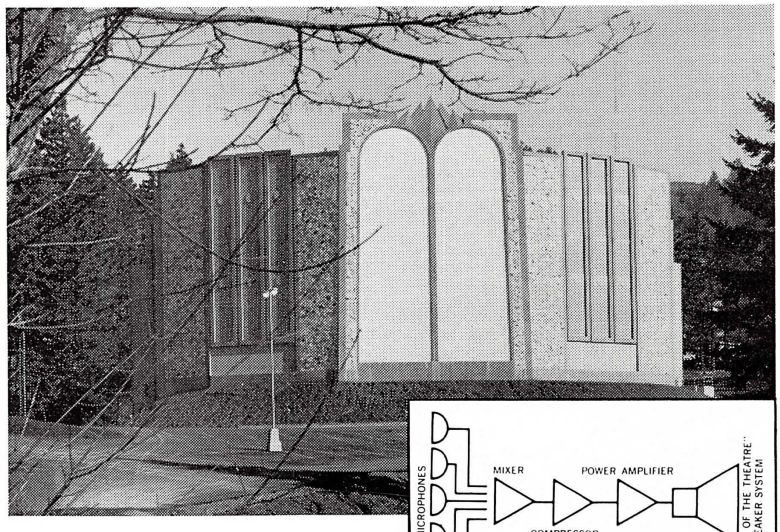
CONTOUR QUARRY TILE BY

Summitville TILES, INC.

Summitville, Ohio

Member: Tile Council of America

ALTEC
"Voice of the Theatre"® System Brings Sound Clarity to 1200-Seat Neveh Shalom Synagogue



An Altec "Voice of the Theatre" sound system brings the sounds of worship in crisp clarity to every member of the congregation at Neveh Shalom Synagogue. This newly completed temple in Portland, Oregon, uses the same speaker system that is depended on by most of the nation's theatres and concert halls.

Centrally mounted above the pulpit, this professional speaker system reaches every seat without reverberation, feedback, or echo.

Neveh Shalom further ensures the finest sound reinforcement with a complete Altec system: control and power equipment and compressor amplifier, which maintains preset volume automatically in spite of varying input levels at the microphone.

Neveh Shalom is just one example of how Altec Sound Contractors have been of service to leading architects and engineers for important structures. Altec Sound Contractors offer you their specialized knowledge in the installation and servicing of sound systems to meet your specifications.

THE ALTEC SOUND CONTRACTOR organization is not only the best—it is the only group of its kind. Its experience dates back to the day when Bell Laboratories coined the term "public address." Every year, Altec factory engineers conduct graduate courses throughout the country, imparting the latest audio knowledge to these authorized Altec Sound Contractors. Place your sound project in their hands as your best assurance of client satisfaction.

CALL FOR INFORMATION. Your Altec Sound Contractor is listed in the Yellow Pages under "Sound Systems." Or write Dept. AR-5.

See Sweet's: Architectural File 33a/AL. Industrial File 17f/AL

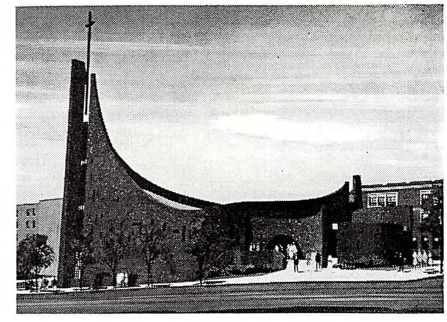
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ALTEC LANSING

A Division of LTV Ling Altec, Inc.

ANAHEIM, CALIFORNIA

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CHURCH DESIGNED FOR NEW LITURGY

St. Brendan's Roman Catholic Church, Bronx, New York, was designed with the new liturgical reforms in mind and with a desire to draw the congregation closer to the sanctuary through the use of curvilinear shapes. Architects are Belfatto and Pavarini, New York City. Structural engineers are Frailoi-Blum-Yesselman and mechanical engineers are Kelly & Morris. General contractor is Vincent E. Iorio, Inc.

The design provides upper and lower churches, each seating approximately 700 people. The structure has light steel frame construction. The "warped" roof design is achieved by a succession of straight long-span joists, joined by tees and plank. The walls are curved precast concrete planks faced with antique brick.

The total cost of the project is $1,300,000. The figure includes the rectory and a two-classroom addition to the existing school, which is adjacent to the church. Completion is scheduled for December.

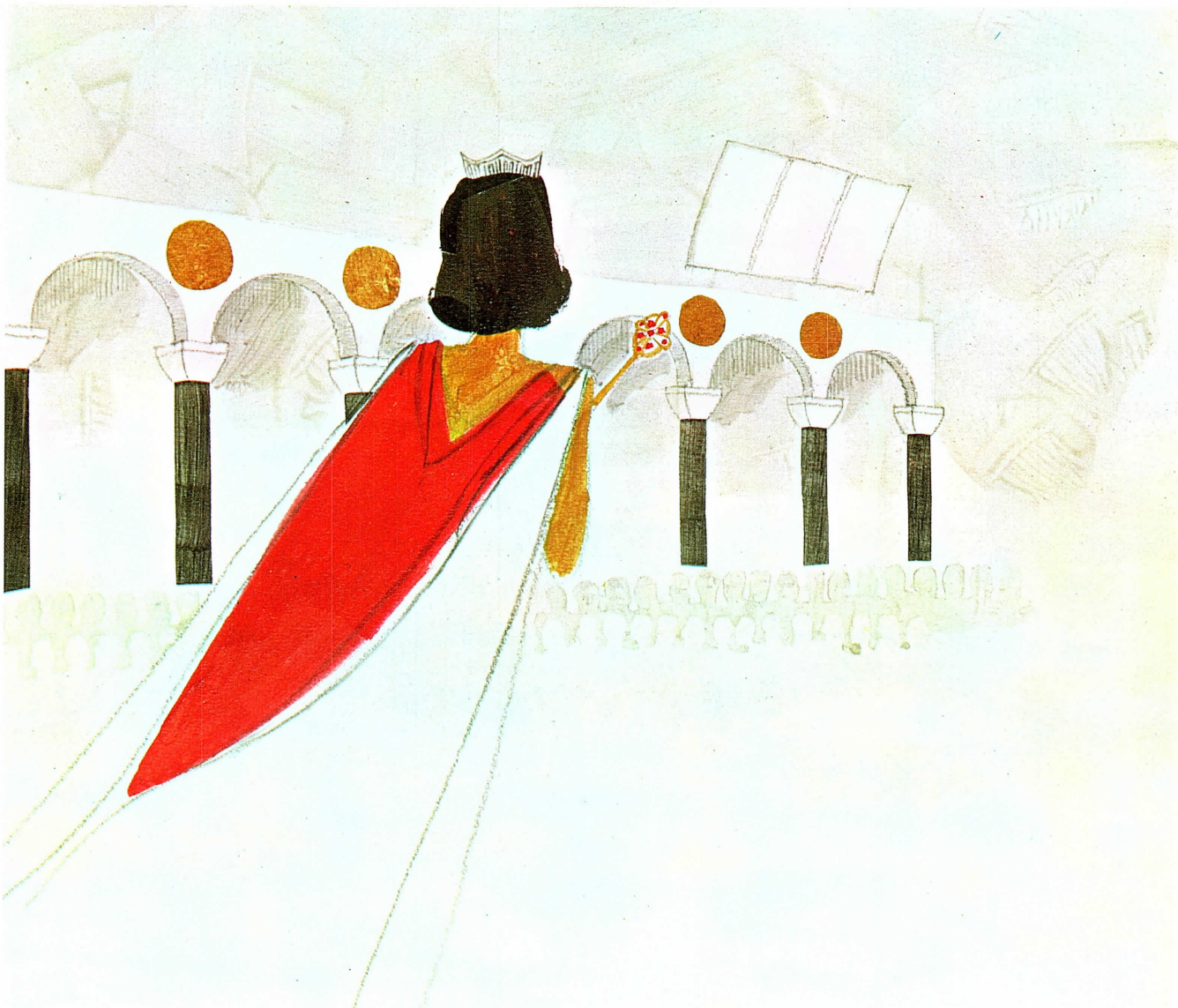
KEVIN ROCHE WINS BRUNNER PRIZE

Kevin Roche, chief designer of Eero Saarinen Associates, will receive the 1965 Arnold W. Brunner Memorial Prize in Architecture, offered by the National Institute of Arts and Letters, on May 19, at the joint annual ceremonial of the National Institute and the American Academy of Arts and Letters.

The prize, which consists of $1,000 and a citation, is annually given to a younger architect who shows the promise of contributing to architecture as an art.

For more data, circle 169 on Inquiry

How will CARNES make Miss America of 1965 more comfortable during the heat of competition?

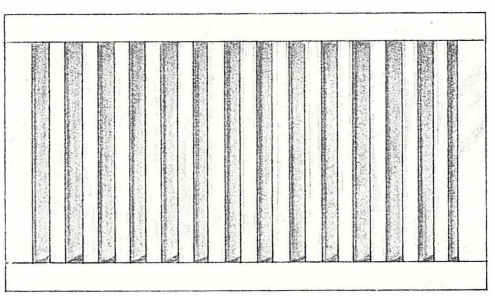


Atlantic City Auditorium and Convention Hall, Atlantic City, N.J.

turn page for answer

ANSWER
Carnes furnished all the air distribution products when this gigantic auditorium was air conditioned in 1964. In addition to the hundreds of registers, grilles, square and rectangular diffusers, Carnes also furnished 600 feet of continuous Curtainline® diffusers... equivalent to the length of two football fields. Incidentally, the last Liberty Bowl Football Game was played in this Atlantic City Auditorium.

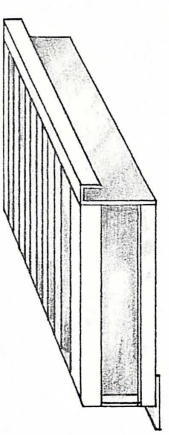
What's so new about this extruded aluminum louver ?



It's the most weather proof vertical blade design ever made in a 6″ deep louver.

Now Carnes puts "umbrellas" over your air supply! The new Stormlock® vertical fixed blade louver for outdoor use lets air pass through, but entraps rain even under extreme weather conditions. And does it in a 6″ deep louver.

And Carnes' Stormlock® gives you even more. Vertical blades, with a wide, slightly-curved face flange, give you new opportunities in the design of esthetic building exteriors. Sharp, clean lines are achieved through the use of rugged, heavy gauge extruded aluminum blades and frame. Blades spaced only 2″ apart not only give better appearance and maximum strength, but completely eliminate "see-through."



There's a drainage pan for easy escape of entrapped water. And extension sills are available to drain the water away from the building. Write for more facts about how the new Carnes Stormlock® lets in air while it holds back the weather!

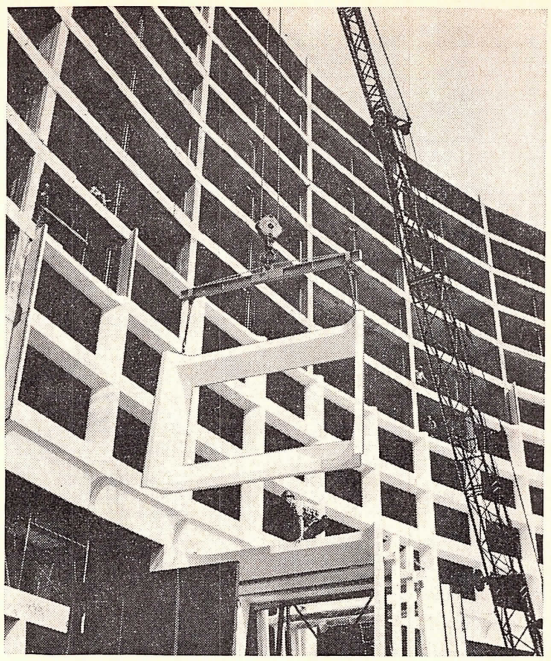
Model L-29 Standard
Model L-29F Flange Frame Construction

LEADERS GO TO CARNES FOR THE NEWEST IN AIR DISTRIBUTION EQUIPMENT

CARNES®

CARNES CORPORATION
Verona, Wisconsin

Canada: Vapor Carnes, Ltd., Montreal 26, Quebec



Landmark of distinction with 2,000 precast panels of

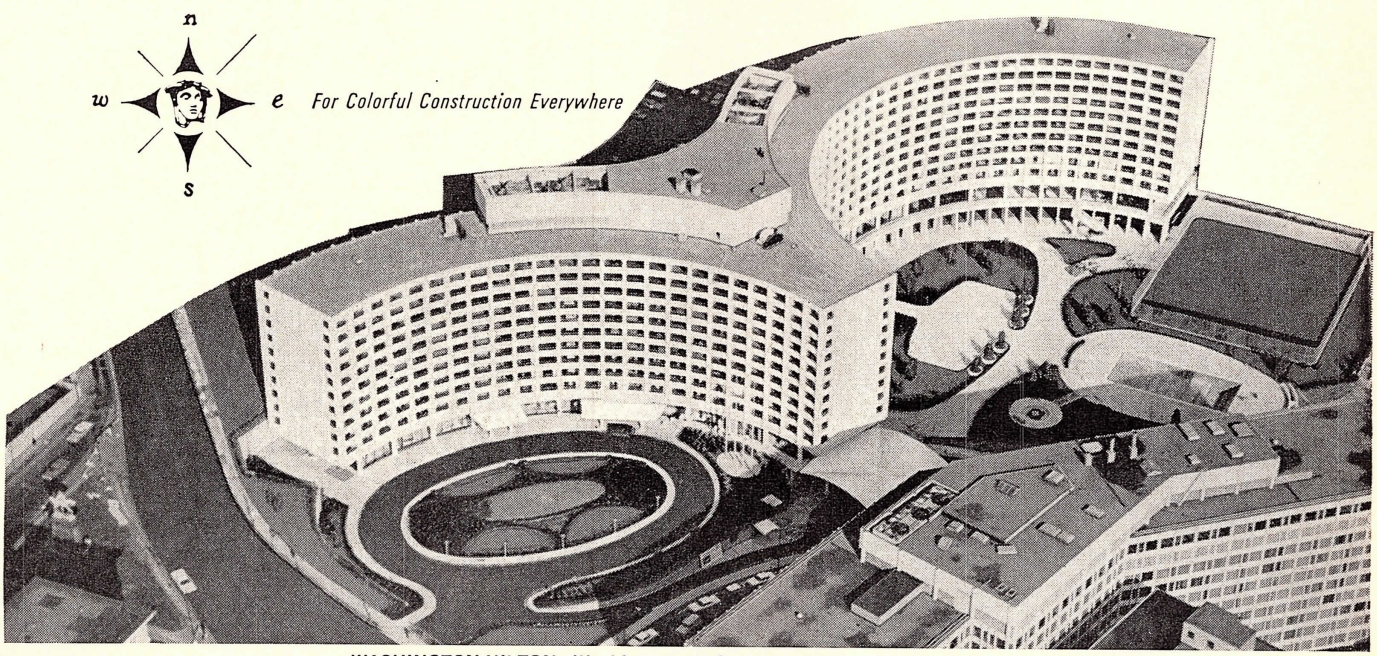
MEDUSA WHITE

The engineer, contractor and precast producer bring striking reality to an architects' creativity in the new Washington-Hilton Hotel, in Washington, D.C. 2,000 precast, white aggregate, sculptured panels each weighing near 5000 pounds make up the entire facade. All made with Medusa . . . the original White Portland Cement.

For whitness, color fidelity, strength and workability use true-white Medusa White. Meets all ASTM and Federal specifications for strength. Can be used anywhere that gray portland cement is used. Write direct for more data or contact your local precast products manufacturer.

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For Colorful Construction Everywhere



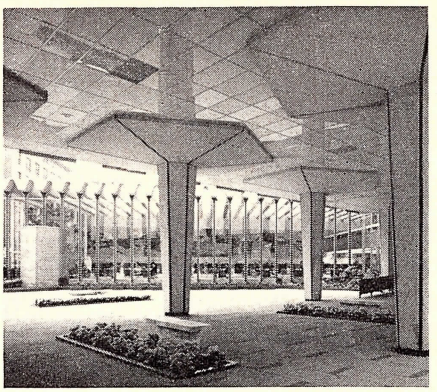
WASHINGTON-HILTON, Washington, D.C. Architect: William Tabler, New York, N. Y. Gen. Contractor: Uris Bros., New York, N.Y. Precast units by: Tecfab, Inc., Beltsville, Md.

MEDUSA PORTLAND CEMENT COMPANY

P. O. Box 5668 • Cleveland, Ohio 44101

For more data, circle 170 on Inquiry Card

ROCHESTER BANK COMPLEX IS DESIGNED TO CREATE AN INFORMAL PLAZA



Louis Ouzer, photos



An 11-story office tower and an adjoining lower wing containing a public banking office comprise the Security Tower Plaza of the Security Trust Company in Rochester, New York. Architect for the complex is William F. Cann. The general contractor for the project was John Luther and Sons Company.

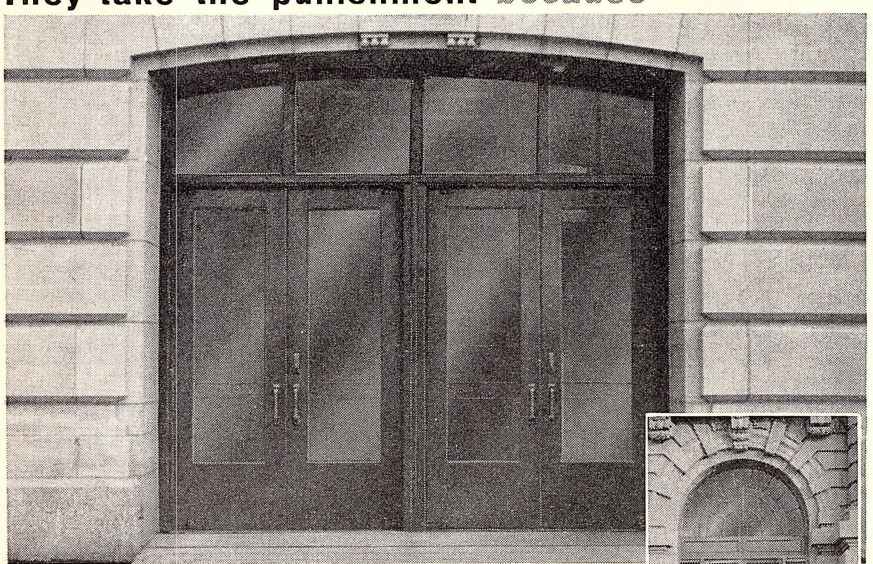
An irregularly shaped site in the heart of the business district influenced the architect to set the tower building on stilts and locate the main banking room next to the property line, thus opening up the corner and permitting the use of an informal plaza as the approach to the building entrances.

The tower building is supported on 10 golf-tee shaped columns. "Vertical lines of the tower were strongly emphasized," said the architect, "because the taller the tower seems, the more dramatic the complex becomes. This was achieved by soaring vertical bands of white quartz exposed aggregate, alternating rhythmically with dark bands of glare- and heat-absorbing glass." In addition to executive offices, the tower will contain the trust, mortgage, investment, credit and tax departments of the bank, as well as five floors of rental space. The top floor provides dining facilities.

The lower wing, in addition to containing the public banking office, contains an employe lounge, meeting rooms, the safe deposit facility and some executive offices.

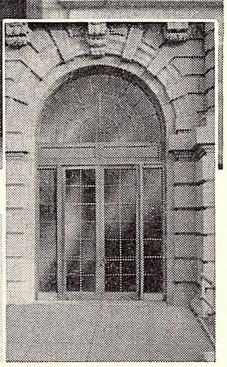
The plaza is made up of Italian marble chips embedded in a matrix of coral-colored concrete. Buried pipes heat the entire surface, including sidewalks to prevent snow accumulation. Also a combination of plants and a reflecting pool and cascade will be part of the plaza.

They take the punishment *because*



They're *engineered* **for Permanence**

In the rehabilitation of **BANCROFT HALL** U. S. Naval Academy
Architect: George M. Ewing Co.
used 66 Ellison Balanced Doors and 10 Vari-stile Doors
in both Bronze and Aluminum including framing



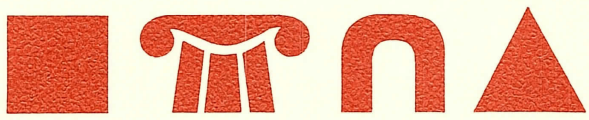
With the same meticulous craftsmanship as in all *Ellison* entrances, these doors will handle the Middies and stay beautiful. *Ellison* ONE SOURCE RESPONSIBILITY offers the architect complete service for designing and engineering entrances for new and remodeled buildings. *Ellison* engineers backed by 50 years company experience are ready to help architects with any entrance problem.



Ellison ENTRANCES

the BALANCED DOOR—the VARI-STILE door
in BRONZE STAINLESS STEEL TEMPERED GLASS
STEEL ALUMINUM WOOD
ELLISON BRONZE CO., Inc., Jamestown, N. Y.

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DESIGN IDEAS 1965

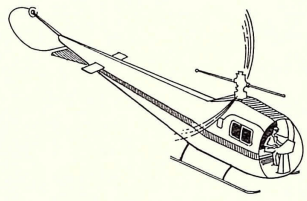
On the following five pages you'll see specific examples of how Koppers building products have helped architects and engineers obtain greater latitude of design and save money for clients. These Koppers products are either permanent in themselves or they give permanence to other materials.



From basement to rooftop helistop, coal tar protects new Los Angeles skyscraper

Los Angeles, like other large American cities, is faced with a growing problem: more and more bumper-to-bumper traffic on the freeways.

One answer to this massive tie-up in Los Angeles is to take to the air: there are more than 30 rooftop helistops now operating in greater Los Angeles. And several more are now being built or planned. Helicabs now fly rooftop to rooftop, and it costs little more than a taxicab.



One new helistop sits atop the 28-story California Federal Plaza building, designed by Charles Luckman Associates. Helicopters weighing as much as 12,500 pounds land on a 78′ x 108′ concrete pad. The pad is made up of 3″ thick concrete slabs that help absorb vibration from the helicopters.

Waterproofing for this rooftop helistop was provided by a built-up membrane of tarred felt and Koppers coal tar pitch. A similar system was used on the 4th floor roof, under a slate promenade.

On the ground, twenty large planting boxes are waterproofed with a similar built-up membrane, which is protected from the dirt with ½″ insulation.

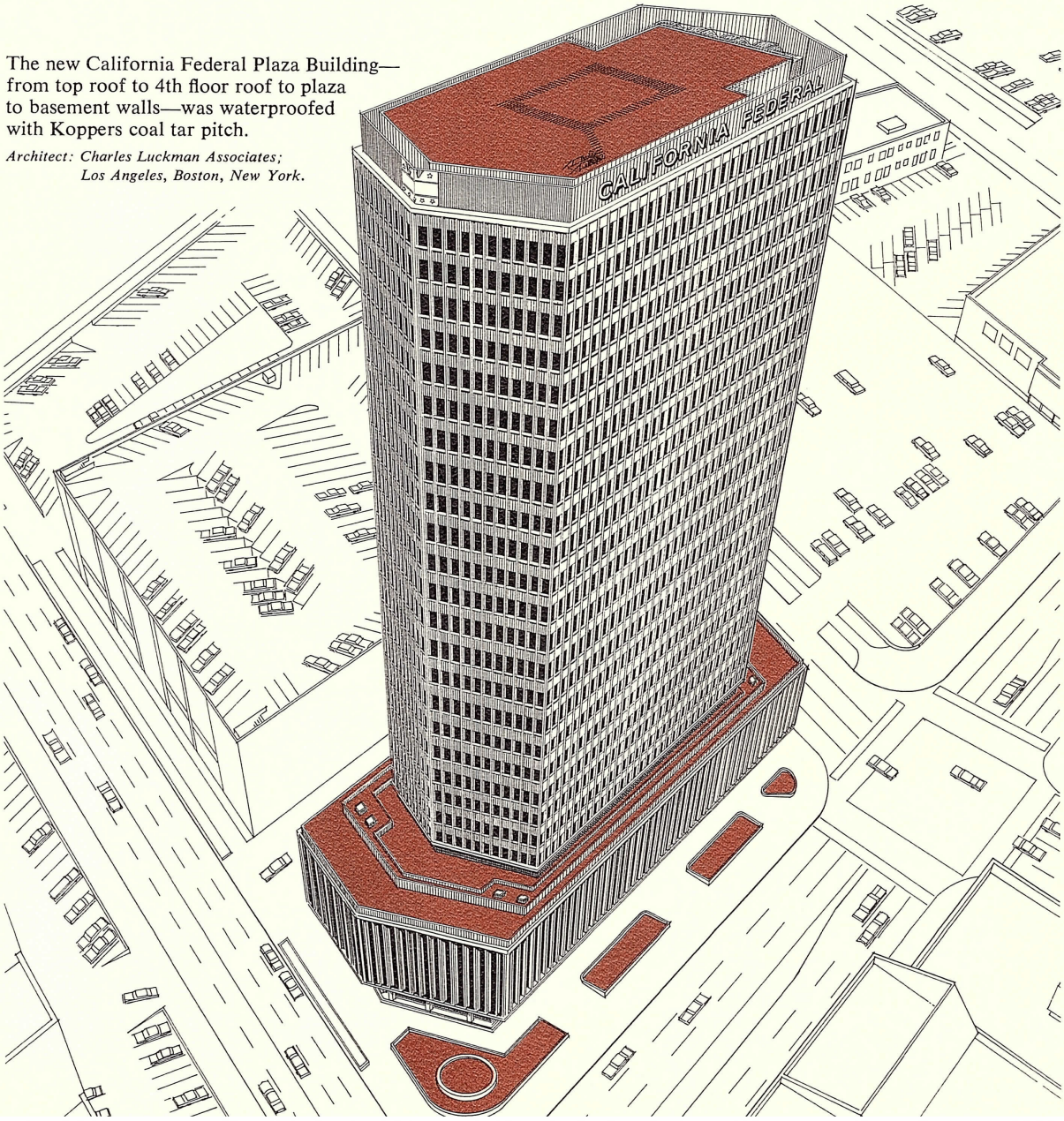
On basement walls outside a service and storage area, Koppers membrane waterproofing was also used. (If you would like help in developing design details and specifications for your waterproofing problems, check the coupon.)

Roofing—on top and on the 4th floor—was standard 4-ply Koppers coal tar pitch built-up roofing, over concrete decks.

Koppers coal tar pitch, unlike other waterproofing and roofing materials, has a molecular structure that permanently resists oxidation and the penetration of water and water vapor, so it retains its waterproofness. For more information on Koppers complete line of coal tar waterproofing, dampproofing, or roofing materials, check the coupon.

The new California Federal Plaza Building—from top roof to 4th floor roof to plaza to basement walls—was waterproofed with Koppers coal tar pitch.

Architect: Charles Luckman Associates; Los Angeles, Boston, New York.



A construction problem solved, money saved, and fire codes met with NON-COM *wood*



Paul Deneau & Associates (and owner of Dayton Inn); Dayton, Ohio

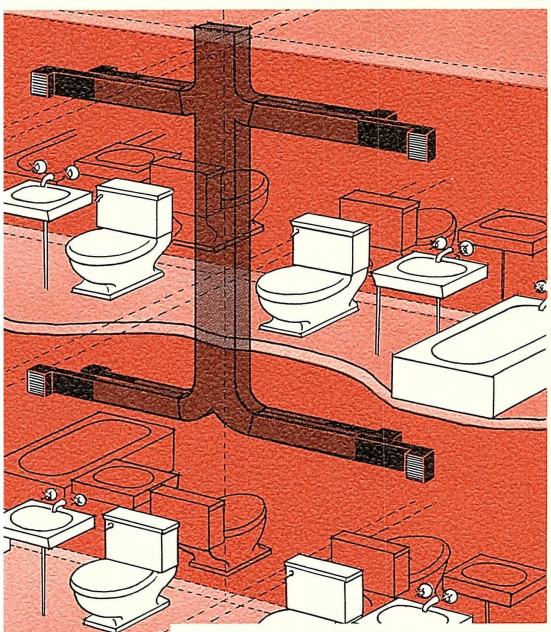
When the architect began planning to remodel the Dayton Inn in Ohio, he was faced with problems inherent to many older buildings: ceilings that were nominally 9 feet high but varied as much as 9″ from floor to floor, and outside walls that varied in thickness from 30″ on the ground floor to 12″ on the top.

He wanted to use wood studding because it is adaptable and easy to work; he met Dayton fire codes by specifying NON-COM® *fire-protected* wood from Koppers.

The architect installed 30,000 lineal feet of NON-COM studs on 2-foot centers, instead of metal studs. As a result, he saved money on material costs, and labor costs were cut ⅓.

NON-COM wood is pressure-impregnated with chemicals that provide automatic fire protection. The chemicals produce carbon and water vapor at temperatures below the ignition point of wood to choke off any flame and prevent fire spread. The same chemicals also provide permanent protection from decay and termites. For information on the advantages and savings in using NON-COM wood in commercial or industrial buildings, check the coupon.

"Hush Flush" sound traps bring golden silence to inn's guests



People who live in modern apartments, hotels and motels are sometimes plagued with sounds they really don't want to hear. Voices have been known to come out of kitchen vents. Water splashing several apartments away sometimes sounds as if it is in the next room. But strange sounds, particularly bathroom plumbing noises from other rooms, have been eliminated at H. A. Knott's Congress Inn in Baltimore because the consulting engineer specified a "Hush Flush" AIRCOUSTAT® sound trap behind the exhaust register in each of the 102 bathrooms.

Each cluster of eight bathrooms is serviced by a roof exhauster drawing through a common duct shaft. To prohibit the passage of voice and plumbing noises from one bathroom to the others, and to silence fan noises, one "Hush Flush" was placed at the end of each eight branches.

There are two main advantages of the "Hush Flush" AIRCOUSTAT. First, each unit, which measures 5″ x 8″ x 23″ long, will handle approximately 150 cfm of air with negligible pressure drop, and provides 18 db noise reduction in the third octave band. This silences the fans. Second, AIRCOUSTAT's double attenuation feature reduces noise up to 75 db in the voice and other high frequency bands. Since noise traveling from one bathroom to another must pass through two units, total acoustical privacy is assured.

"Hush Flush" is the newest item in a complete line of AIRCOUSTAT sound traps made by Koppers. For more information, check the coupon.

ACOUSTICAL PERFORMANCE

OCTAVE BANDS (CPS)	37.5/75	75/150	150/300	300/600	600/1200	1200/2400	2400/4800	4800/9600
NOISE REDUCTION, db SINGLE UNIT	21	20	18	26	32	34	37	38
NOISE REDUCTION, db DOUBLE UNITS	42	40	37	52	64	69	75	76

TURN PAGE →

KOPPERS

Problems ... and low-cost solutions



	BITUMASTIC® COATINGS	INTERTOL® COATINGS	COAL TAR ROOFING PITCH	DURETHENE® POLY-ETHYLENE FILM	COAL TAR WATER-PROOFING PITCH	PAVEMENT SEALERS	PRESSURE-CREOSOTED WOOD	NON-COM® WOOD	WOLMANIZED® LUMBER	CELLON® PRESSURE-TREATED WOOD	DYLITE® FOAM PLASTIC BOARD	KOPPERS BUILDING PANELS	AIROUSTAT® SOUND TRAPS	PENACOLITE® ADHESIVES	LAMINATED ARCHES BEAMS, DECKIN
BUILT-UP ROOFING			X												
WATERPROOFING			X		X										
DAMPPROOFING	X			X	X										
CORROSION PROTECTION FOR STEEL	X	X													
CORROSION PROTECTION—CONCRETE & MASONRY	X	X			X										
PROTECTION OF ASPHALT PAVEMENT						X									
INSULATION										X	X				
LOW-COST PILING, POLES & STRUCTURES							X								
FIRE PROTECTION FOR WOOD								X							
TERMITE, ROT & DECAY PROTECTION							X	X	X	X					
SOUNDPROOFING												X			
WATERPROOF ADHESIVE FOR WOOD													X		
STRUCTURAL SYSTEMS											X			X	
ENVIRONMENTAL CONTROL										X	X	X			

Earl F. Bennett, Mgr. Architectural Sales
Koppers Company, Inc.
Room 1322, Koppers Bldg.
Pittsburgh, Pa. 15219

Please send me additional information about the products I have checked:

- ☐ Coal Tar Pitch for Waterproofing and Dampproofing
- ☐ Coal Tar Pitch Built-Up Roofing
- ☐ DYLITE® Refrigeration Panels
- ☐ BITUMASTIC® Enamels—Coal Tar Coatings for corrosion protection
- ☐ NON-COM® fire-protected lumber
- ☐ "Hush Flush" AIROUSTAT®
- ☐ Other (Please Specify)_____

Name_____

Title_____

Company_____

Address_____

City_____ State_____ Zip Code_____

2-7

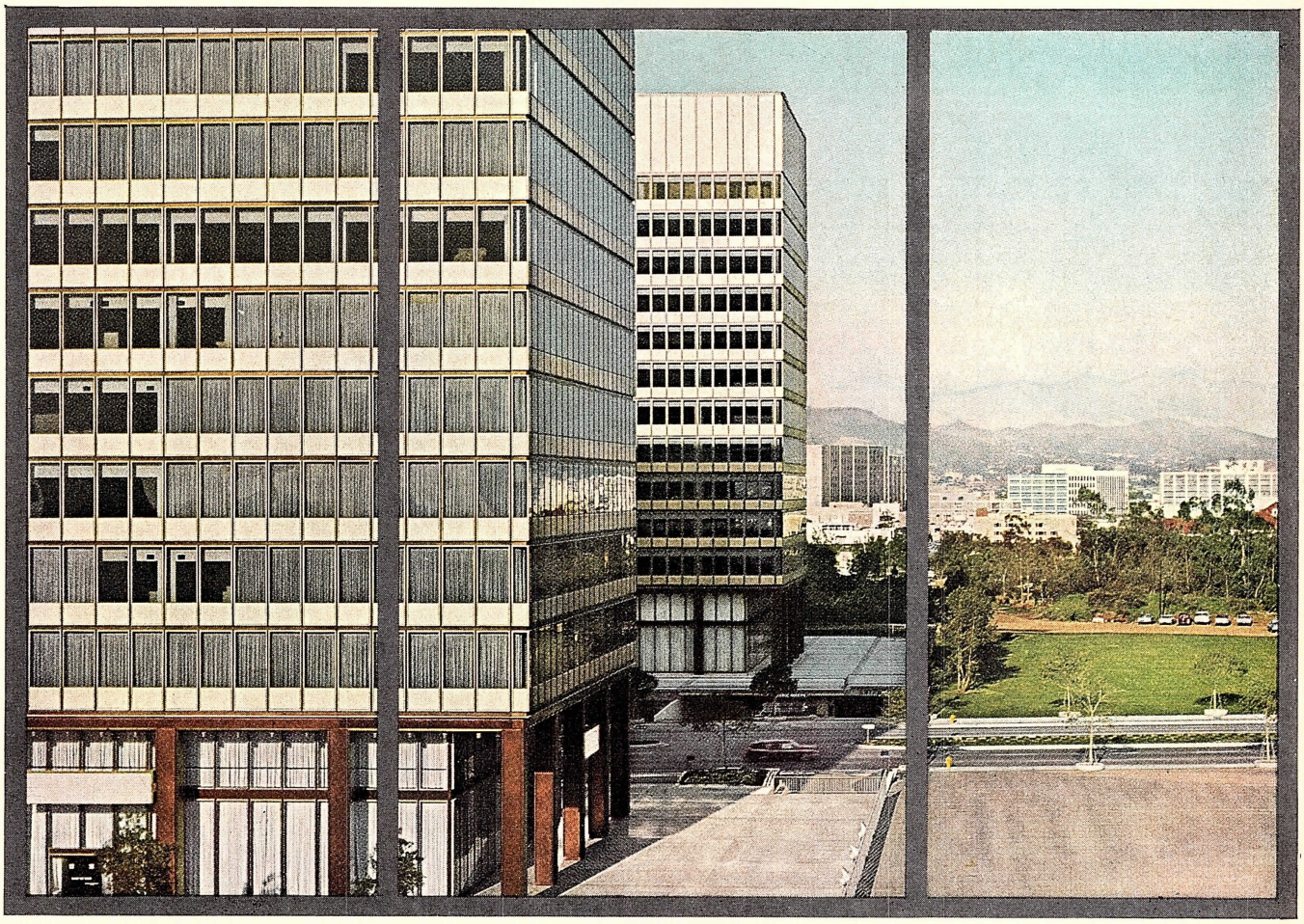
For additional information abou
Koppers products featured in th
file... please return this coupo

KOPPERS

Pittsburgh, Pennsylvania 1521

KOPPERS®

You're looking at Los Angeles through a new glass from PPG that shuts out 70% of the sun's heat and has a "U" value of .35



Photograph taken through a sample of SOLARBAN TWINDOW simulating typical building location. Camera: 4 x 5 Linhof, 1/50 second at f/11 with Ektachrome daylight.

COMPARATIVE PERFORMANCE DATA		U Value	Maximum Heat Gain (BTU/hr./ sq. ft.)	Visible Light Transmittance %
PLATE GLASS				
Regular Plate Glass	¼"	1.1	200	88
Solargray®	¼"	1.1	150	42
Solarbronze®	¼"	1.1	150	51
Solex®	¼"	1.1	150	73
SHEET GLASS				
Clear Sheet Glass	3/32"	1.1	205	90
Graylite™ 31	⅛"	1.1	170	31
Graylite 61	3/16"	1.1	195	61
Graylite 56	7/32"	1.1	190	56
Graylite 14	7/32"	1.1	150	14
Graylite 52	¼"	1.1	185	52
HIGH PERFORMANCE (Insulating, Heat and Glare Reducing)				
Clear Twindow®		.60	170	78
Solarban Twindow		.35	65	20
LHR Solargray Twindow		.60	90	22
LHR Solarbronze Twindow		.60	90	25
LHR Solex Twindow		.60	90	32
Solargray Twindow		.60	115	36
Solarbronze Twindow		.60	115	45
Solex Twindow		.60	115	65

THE MOST COMPLETE LINE OF ENVIRONMENTAL GLASSES.

It's called PPG SOLARBAN™ TWINDOW®—the latest and most effective product for Glass Conditioning.* It transmits only one third as much heat as regular ¼" plate glass, cutting winter heat loss and summer heat gain by 66%. This makes PPG SOLARBAN about twice as effective as a regular double-glazed insulating unit. And it transmits only about 20% of the sun's visible rays, greatly reducing glare.

What gives PPG SOLARBAN TWINDOW these remarkable properties? Actually, it's two panes of glass enclosing a dry air space. On the air space side of the indoor pane, an exclusive coating reflects approximately 46% of the sun's total energy.

SOLARBAN TWINDOW is the ideal environmental glass in any climate or location. It permits the ultimate in indoor comfort. And the savings in heating and air conditioning costs may more than make up the difference in price.

PPG makes environmental glasses to control the sun's heat and glare on any orientation, of any building, in any environment. For details on these modern glass products, contact your nearest PPG Architectural Representative, consult Sweet's Catalog or write: Pittsburgh Plate Glass Company, One Gateway Center, Pittsburgh, Pennsylvania.

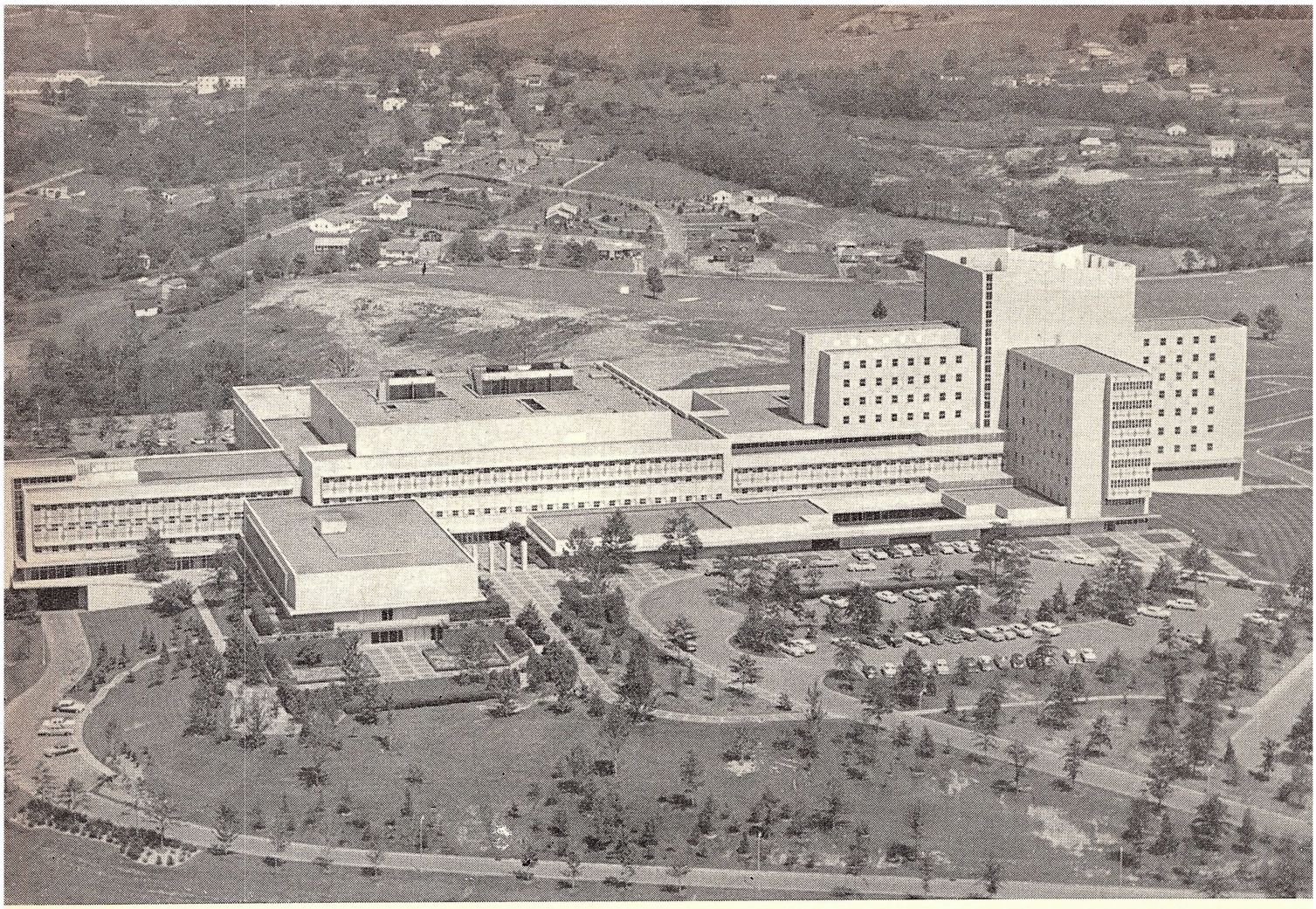
Pittsburgh Plate Glass Company, Pittsburgh, Pa.

PPG makes the glass that makes the difference

another product for Glass Conditioning from PPG

*Glass Conditioning is a service mark of the Pittsburgh Plate Glass Company

For more data, circle 172 on Inquiry Card



WVU's $30 million Medical Center. On the left is the Basic Sciences Building. On the right is the 12-story Teaching Hospital. Architect: C. E. Silling & Associates, Associate Architect: Schmidt, Garden and Erikson, General Contractor: Virginia Engineering Company, Masonry Contractor: Baker and Coombs, Inc.

Why NATCO Vitritile was selected for the new West Virginia University medical center

More than 4,000 tons of Natco Vitritile was used in the interior construction of the new West Virginia University Medical Center in Morgantown, West Virginia.

Some of the many reasons behind the choice of Natco Vitritile for the $30 million dollar center were:

Sanitation . . . Vitritile's ceramic glazed facing is non-porous and impervious to moisture. A simple cleansing with common soap or detergent and water is all that's necessary to keep Vitritile sparkling clean and sanitary.

Modular design . . . Coordinated modular Vitritile units permitted faster construction and, thus, lower immediate cost. Modular drawings made it possible for the tile contractor to bid low and accurately. Minimum cutting and fitting of tile units greatly reduced on-the-job costs.

Beauty . . . Colorful Vitritile never loses its "new look" because its colors and finishes are permanently "fired" on each unit under intense heat. Walls of Vitritile will last the life of any building.

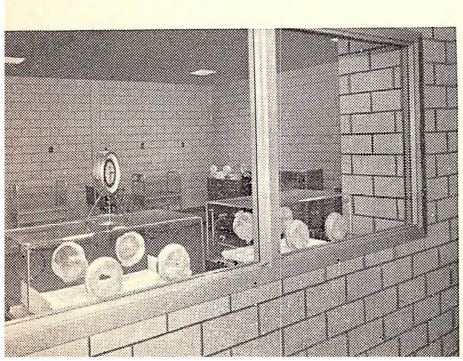
Chemical resistance . . . Vitritile meets all chemical resistance tests specified by the Facing Tile Institute.

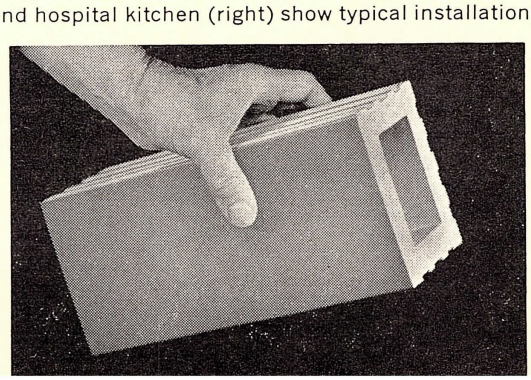
NATCO CORPORATION

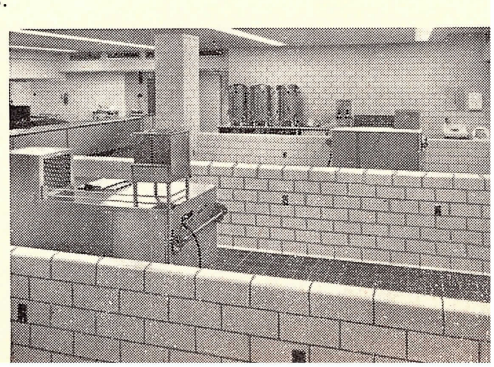
NATCO QUALITY CLAY PRODUCTS SINCE 1889

General Offices: 327 Fifth Avenue, Pittsburgh 22, Pa. Other Branch Sales Offices: Boston, Chicago, Detroit, Houston, New York, Philadelphia, Pittsburgh, Birmingham, Ala., Brazil, Ind. In Canada: Natco Clay Products Ltd., 55 Eglinton Ave. E., Toronto

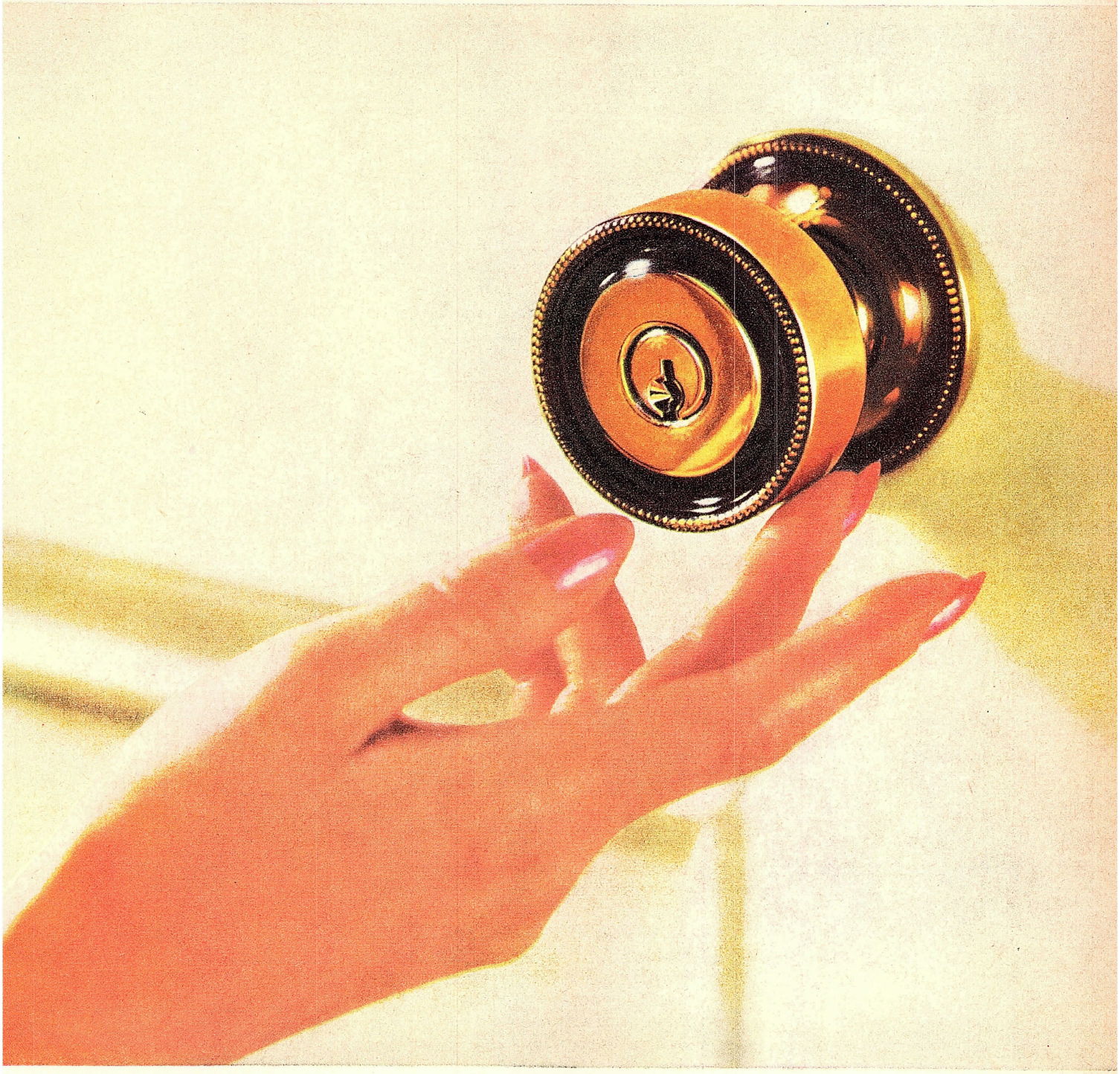
Vitritile (center) comes in three nominal face sizes: 8″ x 16″, 5⅓″ x 12″ and 5⅓″ x 8″, in 2″, 4″, 6″ and 8″ thicknesses. Nursery (left) and hospital kitchen (right) show typical installations.







You get so much more with SCHLAGE



CROWN Illustrated here in oxidized brass, highlights relieved and polished. Also available in other standard finishes. Knob, 2 1/4" diameter; rose, 2 9/16" diameter.

Schlage offers 101 different lock designs–23 different finishes

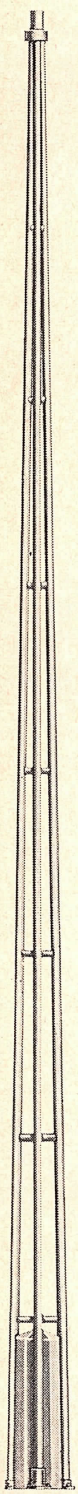
Crown is but one example of Schlage lock beauty and quality. Beauty of design that never grows old. All over the world those who buy, manage, plan or construct residential and commercial buildings turn to Schlage for the finest in locks. And only Schlage offers the wide selection of 101 different lock designs—with the widest possible range of different finishes for each design. Your Schlage sales representative can tell you more. Or write directly to Schlage Lock Company, 2201 Bayshore Boulevard, San Francisco, 19, California. ®SCHLAGE©

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For more data, circle 173 on Inquiry Card

For more data, circle 174 on Inquiry Card

Place your floodlights on a Pedestal – with superior Wide-Lite* features!



Fits All Types of Fixtures!

Functional Beauty!

3-Member Construction for Greater Strength!

Pre-Wiring Cuts Costs!

Aluminum or Steel!

Extra Ballast Room!

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WIDE-LITE

Floodlights • Ballasts
Indoor Luminaires • Poles

WIDE-LITE CORPORATION
A Division of Esquire, Inc.
4114 Gulf Freeway
Houston, Texas

*Trademark of Wide-Lite Corporation

On the Calendar

May

17-21 Second National Convention of the Consulting Engineers Council—Chase Park-Plaza Hotel, St. Louis

21-22 Annual Seminar and Meeting of the International Society of Food Service Consultants—Bismark Hotel, Chicago

24-46 Ninth National Convention of the Construction Specifications Institute—El Cortez Hotel, San Diego

27-28 First "National Brick Bearing Wall Conference", sponsored by Structural Clay Products Institute —Pittsburgh

June

6-9 Fifth National Lighting Exposition—New York Coliseum, New York City

9-11 Conference on "Modern Wood Structures," American Society of Civil Engineers, co-sponsored by the American Institute of Architects, the American Railroad Engineers Association and the American Society for Testing and Materials—Pick-Congress Hotel, Chicago

11-12 Annual Meeting, National Council of Architectural Registration Boards—Sheraton-Park Hotel, Washington, D.C.

13-18 68th Annual Meeting, American Society for Testing and Materials—Purdue University, Lafayette, Ind.

14-18 Annual Convention, American Institute of Architects, and XI Pan American Congress of Architects—Sheraton-Park Hotel, Washington, D.C.

16-18 American Society of Civil Engineers Conference on Quality in Engineered Construction—Sheraton-Jefferson Hotel, St. Louis

20-24 58th Annual Meeting, Air Pollution Control Association—Royal York Hotel, Toronto

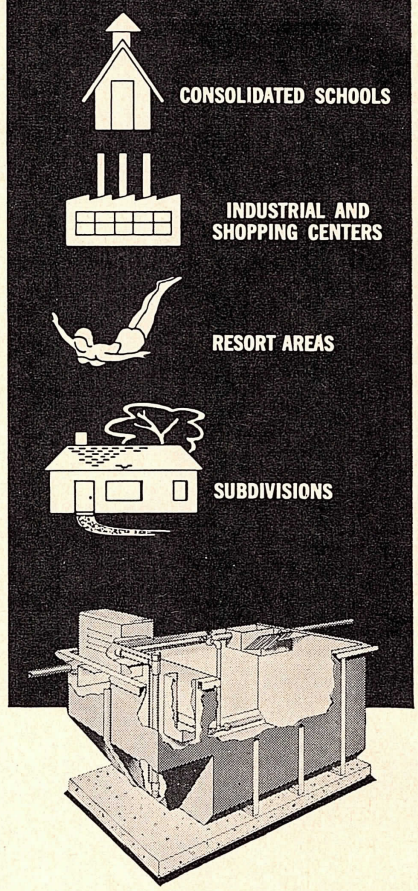
21-25 1965 International Design Conference—Aspen, Colo.

27-30 1965 Annual Meeting and Products Exhibition, American Society of Landscape Architects—Statler-Hilton, Hartford

28ff Institute on Nuclear Defense Design, sponsored by the Office of Civil Defense, the Association of Collegiate Schools of Architecture and the American Society for Engineering Education—Aspen Institute for Humanistic Studies, Aspen,

continued on page 320

LOW-COST
WASTE TREATMENT
FOR 5 TO 50 HOMES



TEX-A-ROBIC
EXTENDED AERATION PLANTS

- "Spiral Action" provides continuous suspension of raw wastes for Aerobic Digestion
- Easily installed and operated

Write for Extended Aeration Bulletin TXAR-EA-64. For plants of larger capacity ask for Contact Stabilization Bulletin TXAR-CS-64.

CAN ★ TEX INDUSTRIES, INC.

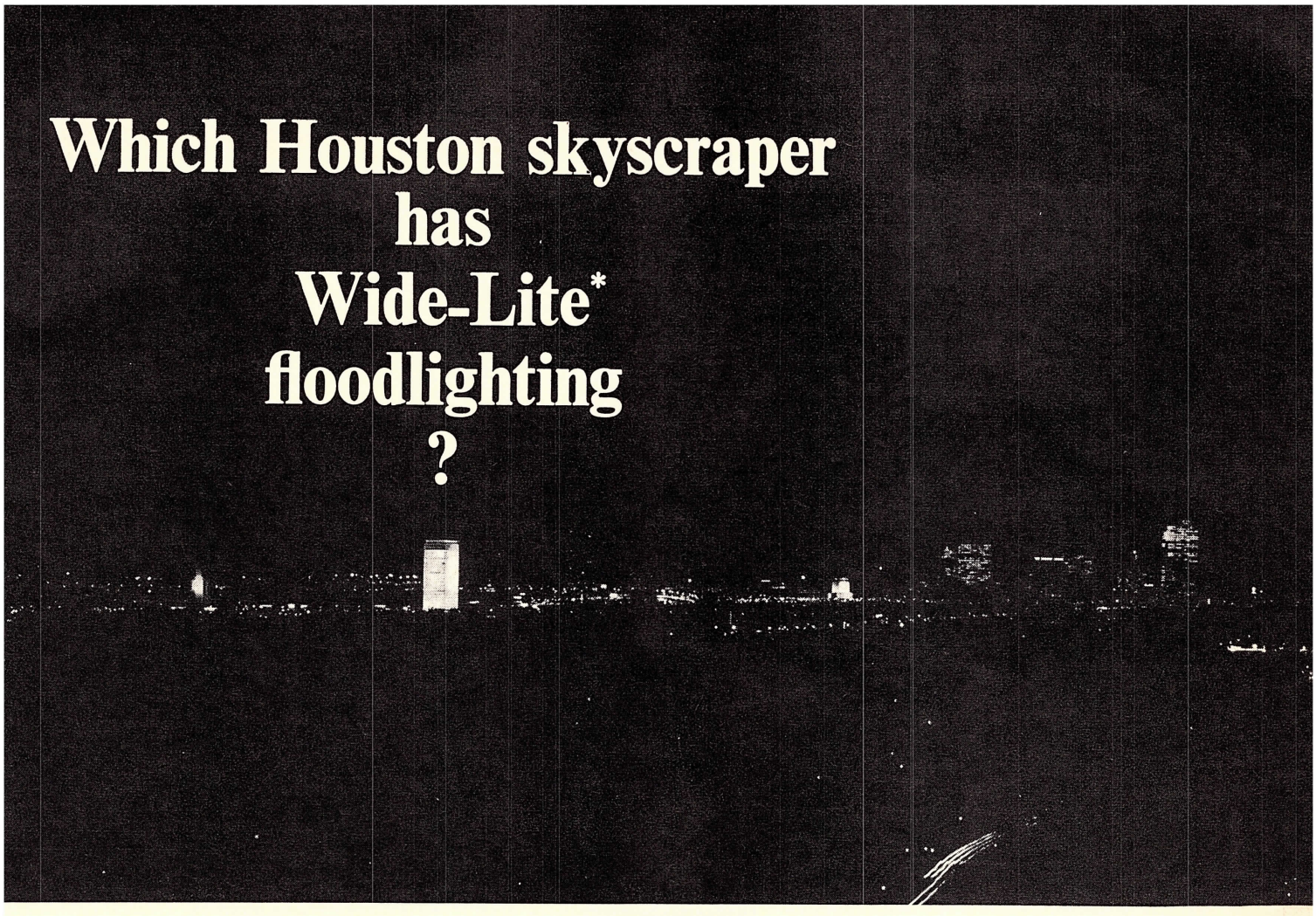
TEX-VIT MANUFACTURING DIVISION
P. O. BOX 340
MINERAL WELLS, TEXAS

Manufactured and distributed in Canada by Canadian Locomotive Company Limited, 36 Park Lawn Road, Toronto 18, Ontario. Phone CL 5-0175.

For more data, circle 175 on Inquiry Card

For more data, circle 176 on Inquiry Card

Which Houston skyscraper has Wide-Lite* floodlighting ?



It's the new 25-story American General Insurance Company Building, and we'd be insulting your eyesight to point out where it is in the photo.

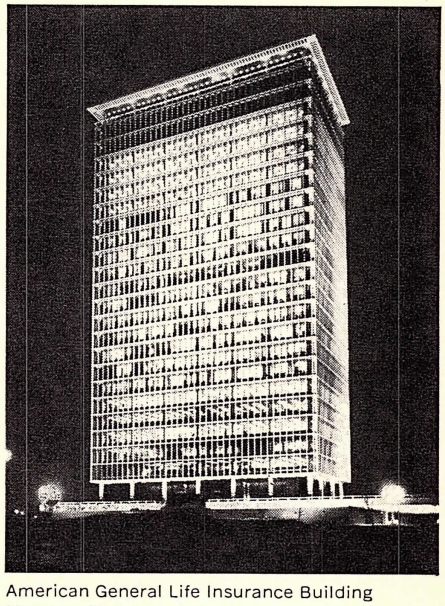
There *are* taller and larger buildings than this new beauty on the Houston skyline—in the daytime. But they tend to disappear when the sun goes down, and the American General Building seizes the skyline as its own.

What does it take to gain such dominance for a building?

"Wide-Lite" floodlighting. In this particular case, just 120 "Wide-Lite" 1000 watt fixtures, using new, developmental G E Multi-Vapor** lamps. These fixtures light *all four sides* of this 330-foot building, with the spectacular result shown in the photo above.

Whenever you need decorative lighting for a building—from a cottage in a housing development to a factory or skyscraper — there is "Wide-Lite" lighting equipment to do the job quite a bit better than any other equipment can do it. There's also a "Wide-Lite" representative ready to give you any help you'd like in planning the lighting. Just call him, or send the coupon.

**Trademark of the General Electric Company



American General Life Insurance Building
Houston, Texas
Architects: Lloyd, Morgan & Jones
Consulting Engineers: I. A. Naman & Associates
Electrical Contractor: Howard P. Foley Company

WIDE-LITE

FLOODLIGHTS • BALLASTS • POLES • INDOOR LUMINAIRES

Wide-Lite Corporation, A Division of Esquire, Inc., 4114 Gulf Freeway, Houston, Texas. *In Canada:* Wide-Lite Division, Wakefield Lighting Limited, London, Canada — *In Europe:* Van Oostenryck, S. A., 9, rue de Formenoir, Bruxelles 7 (Belgium) — *In Mexico:* Inter-Lux, S.A., Apartado Postal No. 1586, Monterrey, N.L., Mexico

*Trademark of Wide-Lite Corporation

WIDE-LITE CORPORATION, 4114 Gulf Freeway, Houston, Texas
Dept. 24A-140

Send me more facts about "Wide-Lite" lighting for a _____

_____

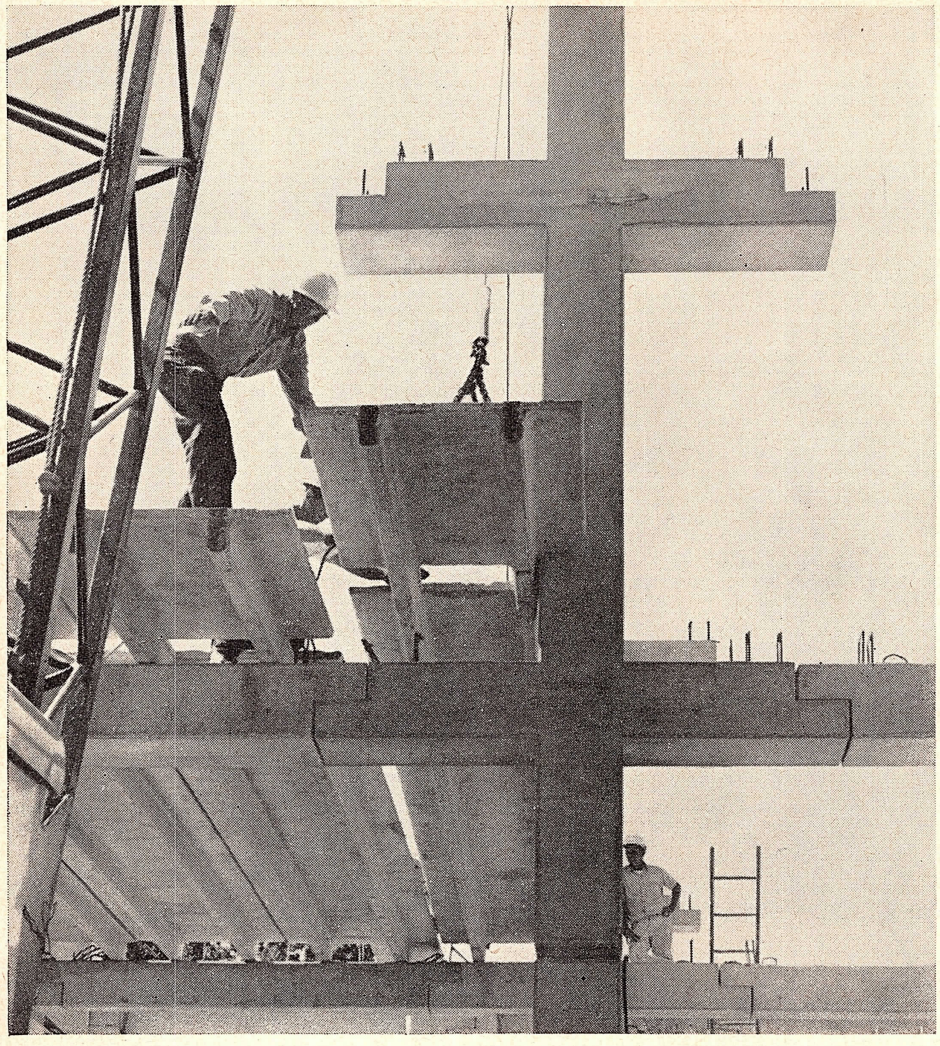
Name _____

Address _____

Firm _____

City _____ State _____ Zip _____

For more data, circle 177 on Inquiry Card



Four-foot wide double-tee floor slab is placed on concrete frame.

Owner: Joseph Longo, M.D., Omaha, Nebraska
Architect: Robert L. Shrum, Omaha, Nebraska
General Contractor: Lueder Construction Company, Omaha, Nebraska
Frame erector: Harris & Meyer, Inc., Omaha, Nebraska
Prestressed concrete and precast concrete: Wilson Concrete Co., Omaha, Nebraska

Prestressed concrete helps cut four months from 12-story apartment construction timetable

An estimated four months was cut from construction time in this 12-story apartment building in Omaha, Nebraska, partly as a result of the use of precast columns and beams, with prestressed double-tee floor slabs. Installation of mechanical systems was simplified and speeded by accessibility of space between the legs of the double tees. Each floor was made by placement of 78 double tees, in lengths of 30 feet and 6 feet. These easy-to-handle units were trucked to the site from the Omaha plant of Wilson Concrete Co.

This project is a classic example of the application of prestressed concrete construction to speed work and reduce costs, while retaining freedom of design. And the selection of Union TUFWIRE® Strand for prestressing strand in the double-tee slabs reflects the increasing reliance of prestressed concrete producers on this job-proved product. TUFWIRE Strand, TUFWIRE and other Union Wire Rope Products are made by **Armco Steel Corporation, Steel Division, Department W-935, 7000 Roberts Street, Kansas City, Missouri 64125.**



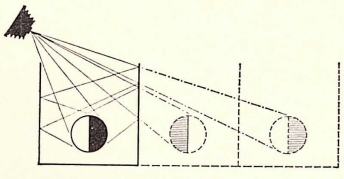
ARMCO STEEL

For more data, circle 178 on Inquiry Card

PILKINGTONS
lead the world in glassmaking



here's no more searching test of a glass
ıan to make it into a mirror, and reflect
ı object in it again and again. There's
o doubt which glass makes today's
nest, truest mirrors. It is Float glass,
vented and developed by Pilkingtons.



Pilkington glass is made or processed in up-to-date plants in nine countries, and behind every product are the vast resources of some of the glass industry's largest laboratories, working on quality control, and on research and development. Pilkington research and development produced Float glass which, with its new clarity and brilliance, outdates Plate glass in modern building, for mirror making and for toughening into safety glass. For the finest glass specify Pilkingtons.

There's an up-to-the-minute glass in the Pilkington range for every building need:
Float • Plate • Sheet
Patterned • Wired • Heat-Absorbing
British Structural Glass
"Armourplate" and "Armourcast" Doors
Coloured Cladding Glass
Domes • Glass Blocks
"Insulight" Double Glazing Units
Diffuse Reflection Glass
Louvre Blades

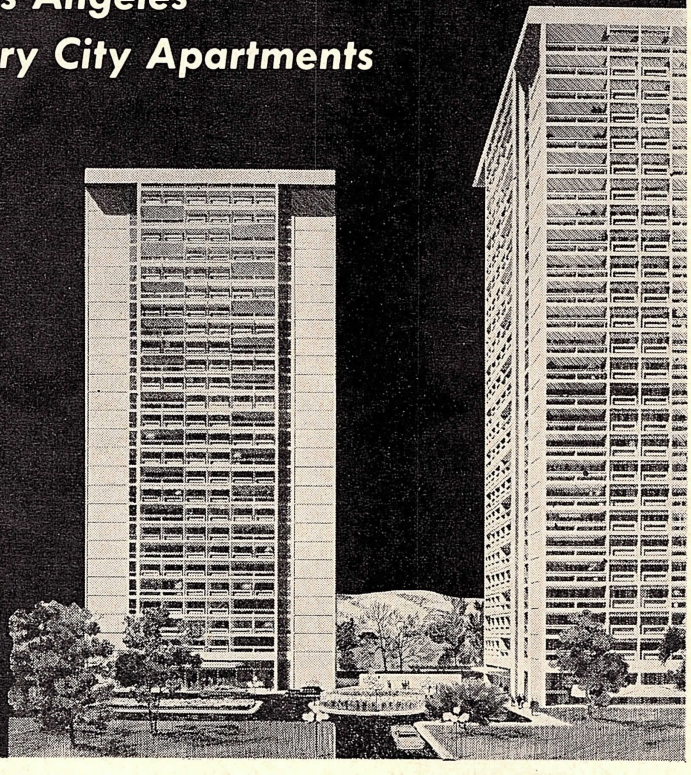
or further information please write to: U.S.A. Sales Dept., Pilkington Brothers (Canada) Ltd., 55 Eglinton Avenue East, Toronto, Ontario
PILKINGTON BROTHERS LIMITED, ST. HELENS, LANCASHIRE, ENGLAND.

OR MODERN BUILDING SPECIFY GLASS BY PILKINGTONS—INVENTORS OF FLOAT

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X-panda SHELF®

—A Better Shelf at a Better Cost for Los Angeles' Century City Apartments

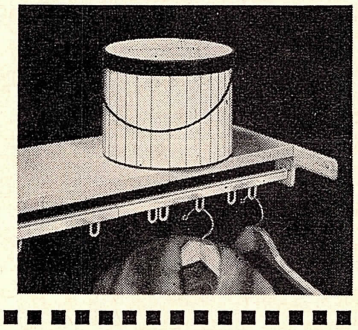


Professionally finished closets enhance the rentability of the Century City apartment complex in Los Angeles. Customer-pleasing, pre-finished X-Panda Shelf not only provides a superior closet shelving of expandable steel construction but installs at an overall lower cost — and eliminates future maintenance cost. Here's the report from Century City:

"We specified Home Comfort X-Panda Shelf for the closets. It was our understanding that the erection cost, because of its expandable features and pre-fabrication, would reduce our installation costs . . . and the bids for the Century Towers apartments proved this to be a fact."

—D. H. McCauley
Director of Purchases
Century City

IF PRODUCT OR PERFORMANCE DEFECTIVE ★ Good Housekeeping GUARANTEES REPLACEMENT OR REFUND TO CONSUMER



X-PANDA SHELF is factory finished in five fashion colors . . . with Bonderized steel construction . . . available in a variety of styles to fit any type of wardrobe, linen or utility closet — including continuous shelving on storage walls. Can't warp . . . never needs painting . . . guaranteed by Good Housekeeping. Send coupon for details.

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home comfort products co.
box 68
princeville, illinois
Phone 309 385-4323

Please send information on X-PANDA SHELF, plus other proven Home Comfort products: AR

☐ VENT-A-SYSTEM attic ventilation ☐ LOUVERS & SHUTTERS

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Firm_____

Address_____

City_____ State_____ ZIP_____

For more data, circle 180 on Inquiry Card

On the Calendar

continued from page 316

Colo.; through July 23

30ff Annual Meeting of the National Society of Professional Engineers—Western Skies Motor Hotel, Albuquerque, N.M.; through July 3

July

2-3 General Assembly, Union Internationale des Architectes—Paris

3-9 Tenth Annual International Seminar on Finnish Architecture and Design—Jyväskylä, Finland

5-9 World Congress, Union Internationale des Architectes—Paris

20-24 First of an annual series of International Seminars on Ekistics and the Future of Human Settlements, organized by the Graduate School of Ekistics—Athens

Office Notes

Offices Opened

The Engineers Collaborative, Ltd., Consulting Engineers of Chicago, Rockford and St. Louis, has announced the acquisition of The Sumner Sollitt Company of Michigan, Inc., which will be operated as a division of The Engineers Collaborative.

A. Epstein and Sons, Inc., Chicago-based international engineering and architectural firm, and **Roger Dunn & Company,** Chicago-based international financing and project development firm, have associated in Spain with headquarters at Jacometrezo, 4-6, Madrid.

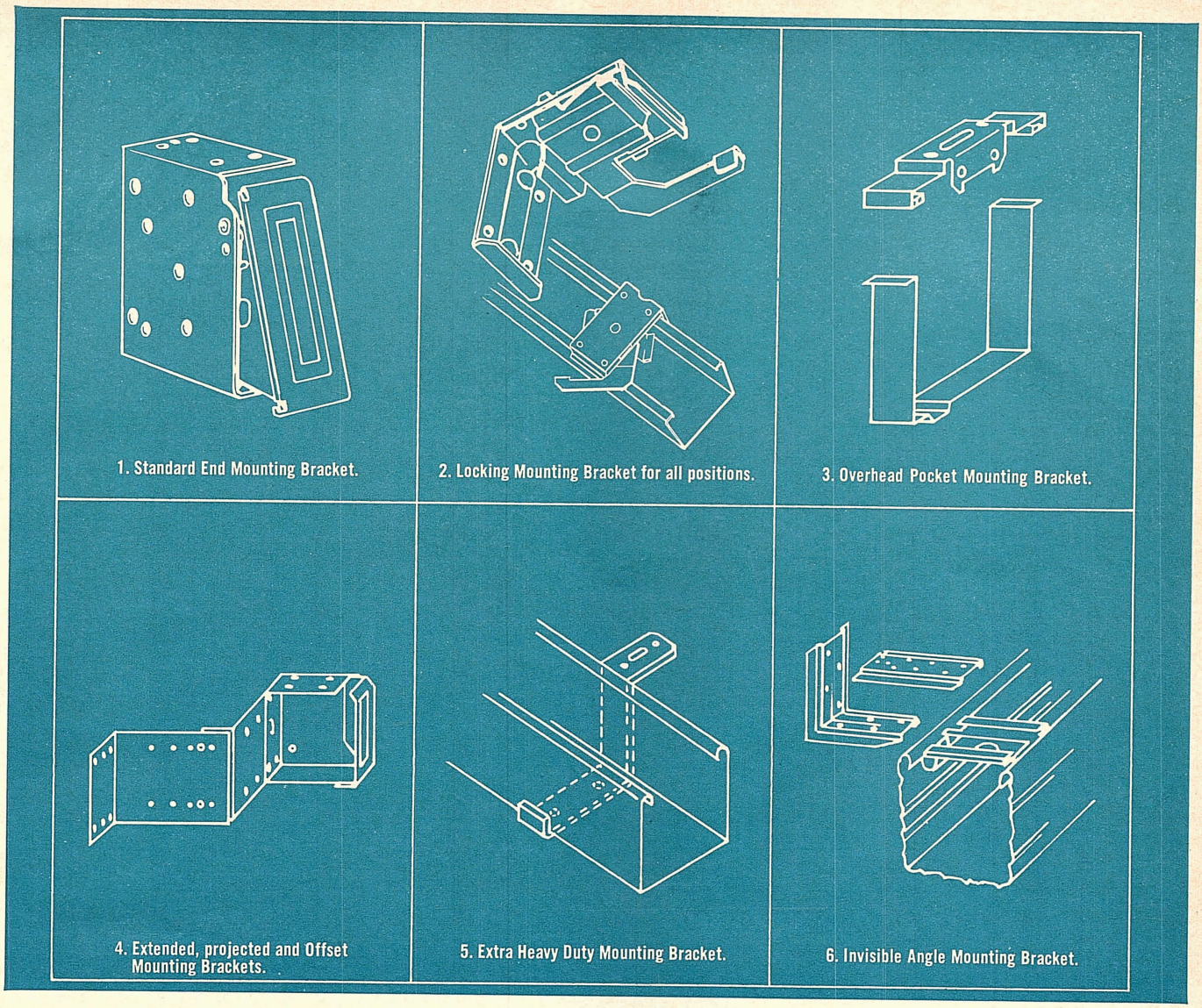
New Firms, Firm Changes

Joseph S. Ward and Associates, consulting engineers in Caldwell, N.J., have announced the appointment of **Robert J. Carlin, Norman J. Coons, Peter F. Mitchell, Gary S. Salzman and Thomas J. Scheil** as associates in the firm.

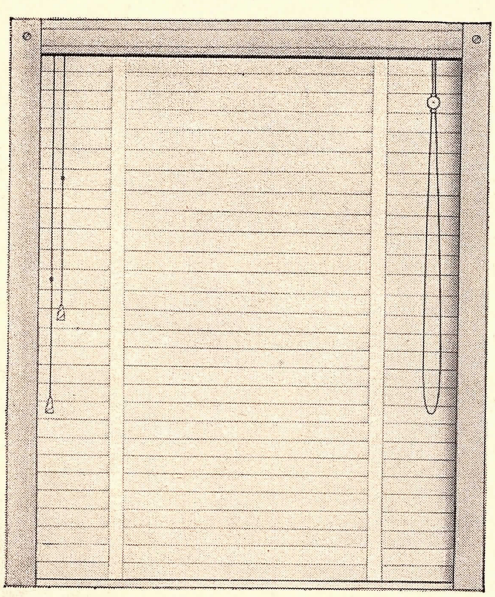
John W. Chappelear, Jr. has become a partner in the Roanoke, Va., architectural firm to be known as **Randolph Frantz & John Chappelear, Architects.**

George W. Cox, architect, and **Gribbin and Catani,** consulting engineers, have formed a partnership for the practice of architecture, engineering and planning at #187 Union St., Hackensack, N.J. and Blanchard Rd., Stony Point, N.Y.

continued on page 324



How many ways are there to install a Venetian Blind?



Of course we don't expect the architect, specifier or contractor to burden himself with the details of installing Venetian Blinds. But, isn't it sensible to award the contract to a company who manufactures a full line of specialized hardware that can guarantee a perfect installation and overcome those unforeseen obstacles without delay?

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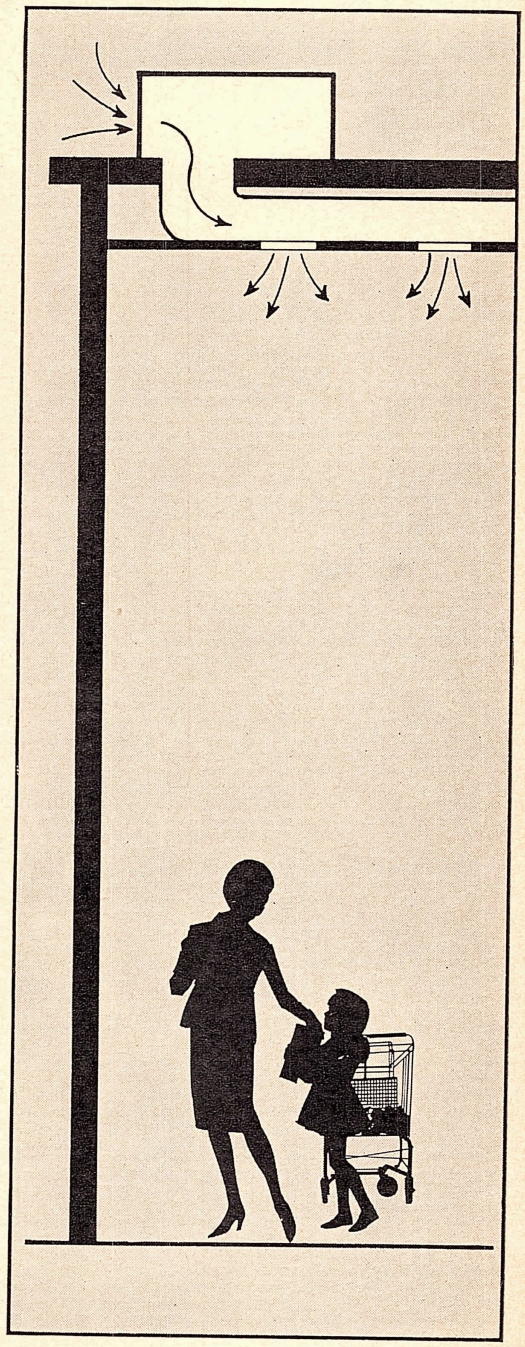
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What is a winter heat wave made of?

Lights. Motors. Combustion. Refrigeration. Sunshine. People.

And an outdoor temperature of 30° or over.

Put them all together and they spell: W-i-n-t-e-r C-o-o-l-i-n-g C-o-s-t-s.

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It air conditions with cool, dry, fresh outdoor air, January or June, whenever temperatures dip below 60°.

There's no compressor wear, or power cost. Or low ambient problems.

How many hours fall within this 30° F. to 60° F. (free air conditioning) range?

Example: In New York City 4500 of the year's 8760 hours are in the Lennox POWER SAVER range: 30° F. to 60° F.

Calculate your savings.
Write for temperature/hour tables on 158 leading cities.

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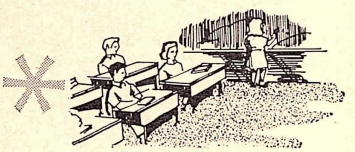
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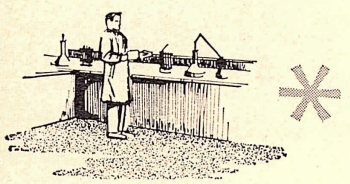
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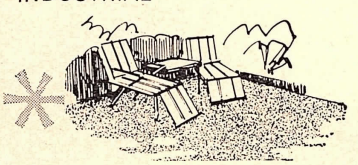
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Office Notes

continued from page 320

John Hackler and Company, Peoria, Ill. announce the reorganization of the partnership. Partners are **John B. Hackler, Evan A. Thompson, John H. Lee and F. J. Mancuso.**

Karl Kaufman has been named a partner of **Leo Kornblath Associates,** New York architectural and interior design firm with divisions in Washington, D.C. and San Juan, Puerto Rico. **Samuel F. Zambito** has been appointed associate-in-charge of the Washington division.

The Butler, Pa., firm of **Howard, Burt and Hill,** architects, has named **John E. Kosar** an associate.

T. Y. Lin and Associates International has changed the name of its San Francisco office to **T. Y. Lin, Kulka, Yang & Associate.**

The **Ken R. White Company** and **Donald L. Preszler,** architect, have announced the appointment of **David E. Nichols,** A.I.A., as supervising architect for the Denver-based firm.

Joseph O. Raley, Jr. has been made an associate in the Charlotte, N.C. architectural firm of **J. N. Pease Associates.**

The Houston architectural firm of **Golemon & Rolfe** has named **Charles F. Sullivan** as manager of the inspection department and **Ralph A. Zander** as a senior associate and project manager.

Wilber Tomberlin, Charles J. Robisch, Joseph S. Bond and D. C. Hudson, Jr., have formed the firm of **Tomberlin Associates, Architects, Inc.,** 51 Fourteenth St., N.E., Atlanta.

Ketchum, Konkel, Ryan & Fleming, consulting engineers of Denver, has made **Nicholas V. Tsiouvaras, Albert E. Anderson and Don T. Pyle** members of the firm.

William Robert Wakeham has been appointed an associate in the firm of **Eugene A. Delmar,** architect, Silver Spring, Md.

Naramore, Bain, Brady & Johanson, architects and engineers, has made **Harry G. Widener, Jr.** a partner and **Donald A. Winkelmann** a senior associate in the Seattle, firm.

New Addresses

Theodore Clattenburg, Architect,

continued on page 332



look to PARAGON for complete specifications, and details on all quality pool products and equipment

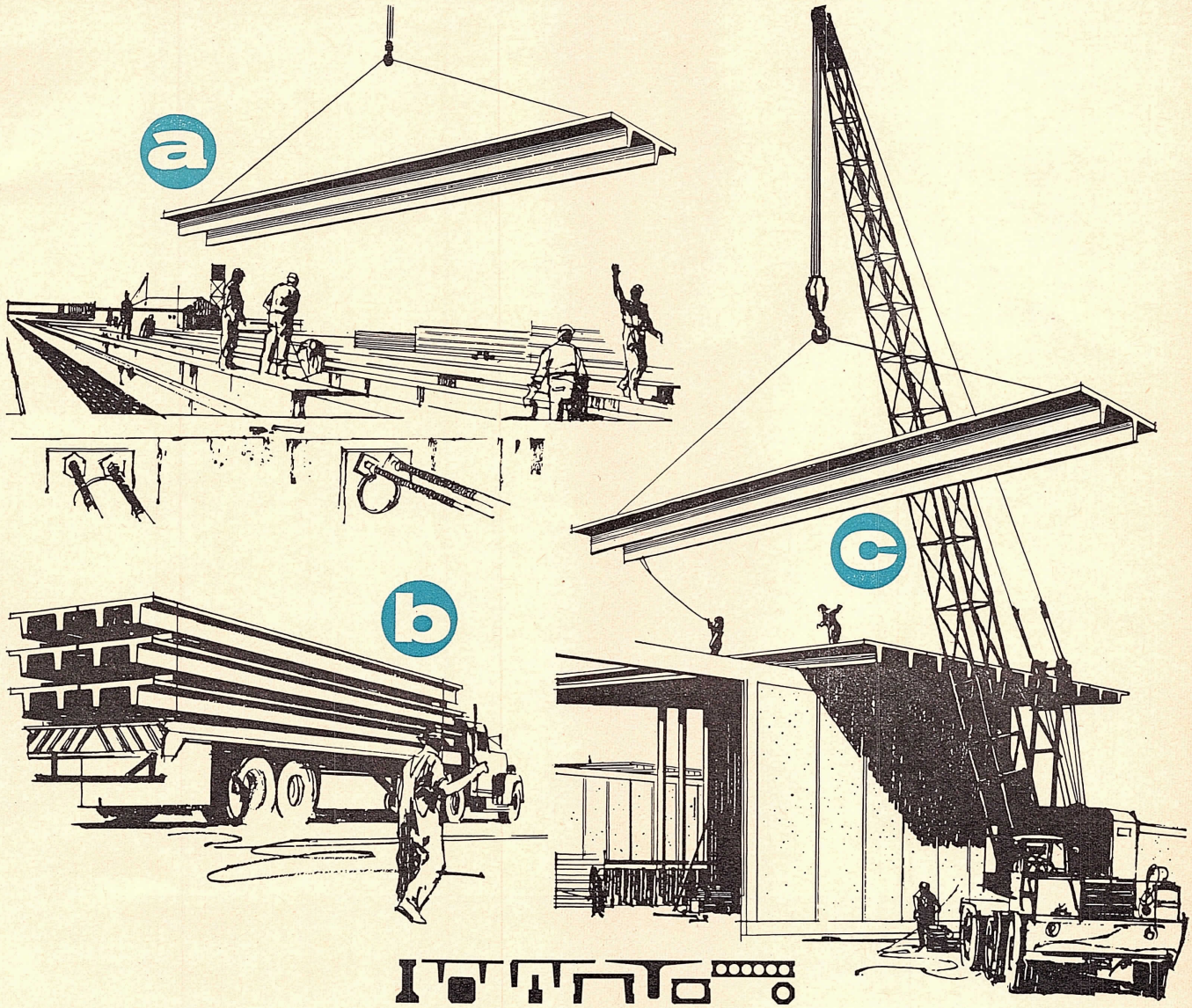
Whenever you require information and data for equipment for any institutional, commercial or residential swimming pool design, call on our staff of experienced engineers and technicians. Paragon will be glad to furnish specifications, details and scale drawings (suitable for tracing). See our Sweet's Architectural Catalog File insert 36c/PA or write for your copy.

Paragon Swimming Pool Co., Inc.
Architectural Planning,
Dept. B,
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a *Prestressed concrete structural units are mass produced in the plant to exact specifications while excavation and foundation work takes place at the site. Close supervision and control of materials by a specialized work force in the plant produce a high quality product at a minimum cost.*

b *Delivery is made as called for by contractors' work schedules.*

c *In almost all instances, units are erected directly from truck to structure without stockpiling or rehandling at the site. Prestressed members fit readily in place to speed erection, shorten total construction time, save labor costs.*

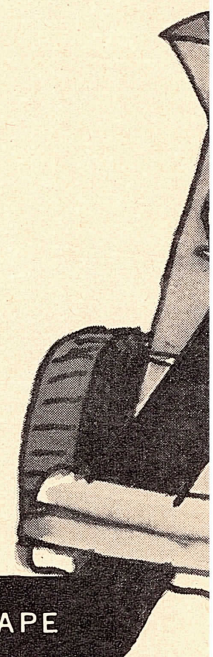
Long spans of gracefully proportioned prestressed concrete beams eliminate columns to provide more usable space. No painting or maintenance is required and little or no waterproofing. Durability and fire resistance mean low insurance premiums. Two-hour Underwriters' Laboratories label service is available on commonly used prestressed concrete members. Advantages like these account for the continuing growth in the use of prestressed concrete in almost every type of structure.

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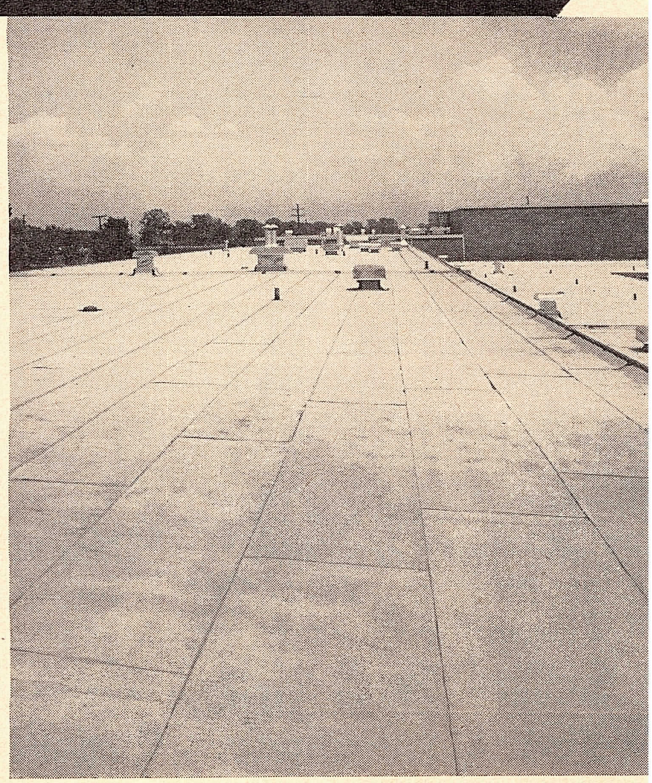
ROOF TAPE FIBERGLAS ROOF TAPE FIBERGLAS ROOF TAPE

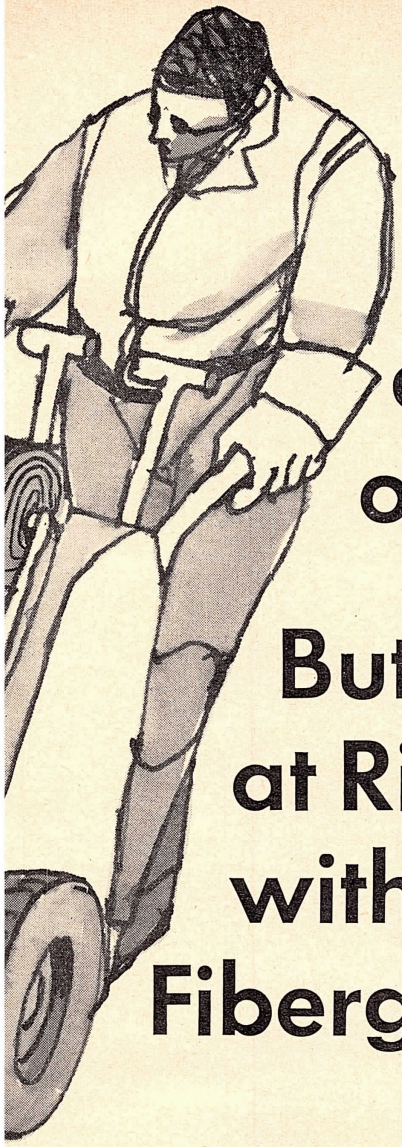
Fiberglas* Roofing System—all-glass roofing—is the weather-defying roof at Ripon.

The heart of the system is the Taped-Joint Fiberglas Insulation. Glass-fiber reinforced, 6-inch wide tape, applied with steep asphalt "welds" the joints together. It forms a unitized insulation mass which serves as a slippage plane to protect built-up roofing from normal deck movement. This reduces failures due to splitting and ridging. Moisture build-up in the system is vented out through the flashings or vent stacks. Thus, blistering and wrinkling failures are less apt to occur. The very points at which roofing failures are most likely to happen, the roofing joints, are cut in half at Ripon. How? With larger size (3′ x 4′) insulation boards.

And the continuous 40-lb. glass reinforced asphalt cap sheet which Taped Fiberglas Roof Insulation provides keeps the asphalt on top where it belongs. Eliminates absorption that could cut thermal performance up to 20%. Ripon also turned to Perma Ply* felts and Perma Cap* surface for the built-up roofing. Both are completely inorganic fibrous glass material. And this asphalt-glass combination resists destructive weathering forces that attack and break down paper based roofing.

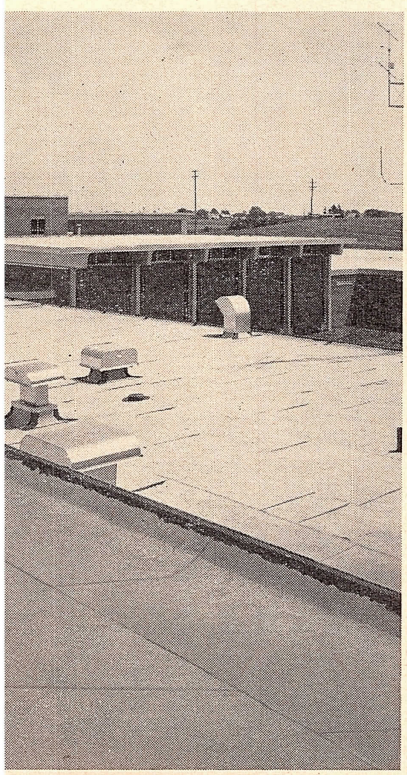
Architects: Von Grossman, Burroughs & Van Lanen of Milwaukee.
Roofing Contractors: Laufenberg Brothers Roofing, Milwaukee.





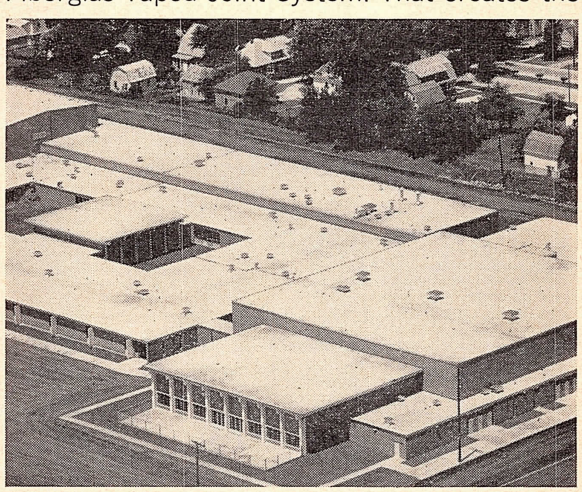
Wisconsin weather can be rough on roofing.

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So whatever your roofing problem (new roofs or old) specify the system that gives the strongest joints in roofing—Fiberglas Taped Joint System. That creates the best base for every built-up roof. It has proved itself on hundreds of schools—to the satisfaction of architects, engineers and owners. Here are some of these jobs: Pontiac Northern High School, Mich.—69,000 sq. ft., Marion Catholic High School, Ind.—84,000 sq. ft., School 35 Rochester, N. Y.—39,500 sq. ft., Catholic High School, New Orleans—44,000 sq. ft.

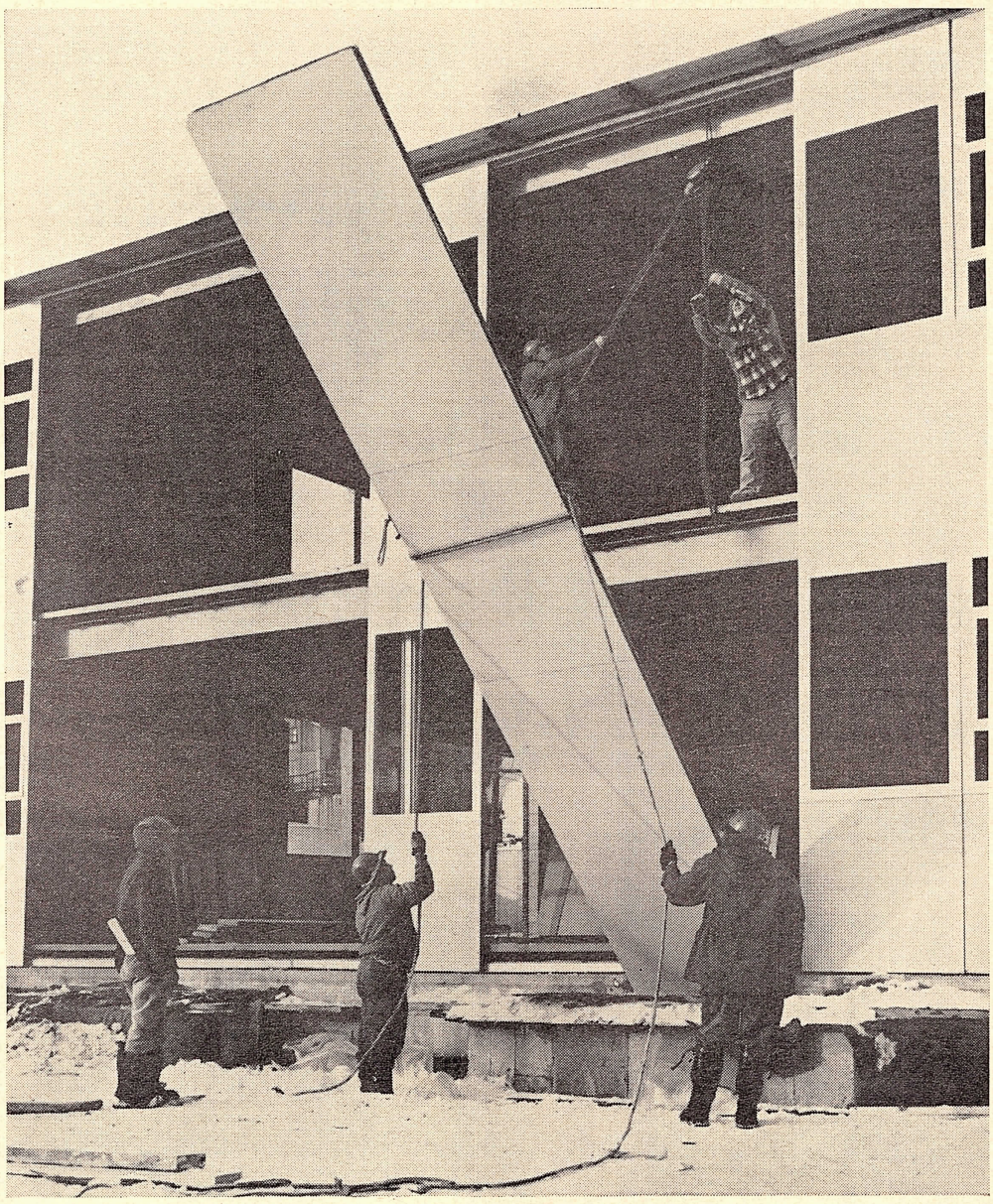
For full details on the Ripon High School Project write: Owens-Corning Fiberglas Corporation, Industrial & Commercial Division, 717 Fifth Avenue, N. Y., N. Y. 10022.



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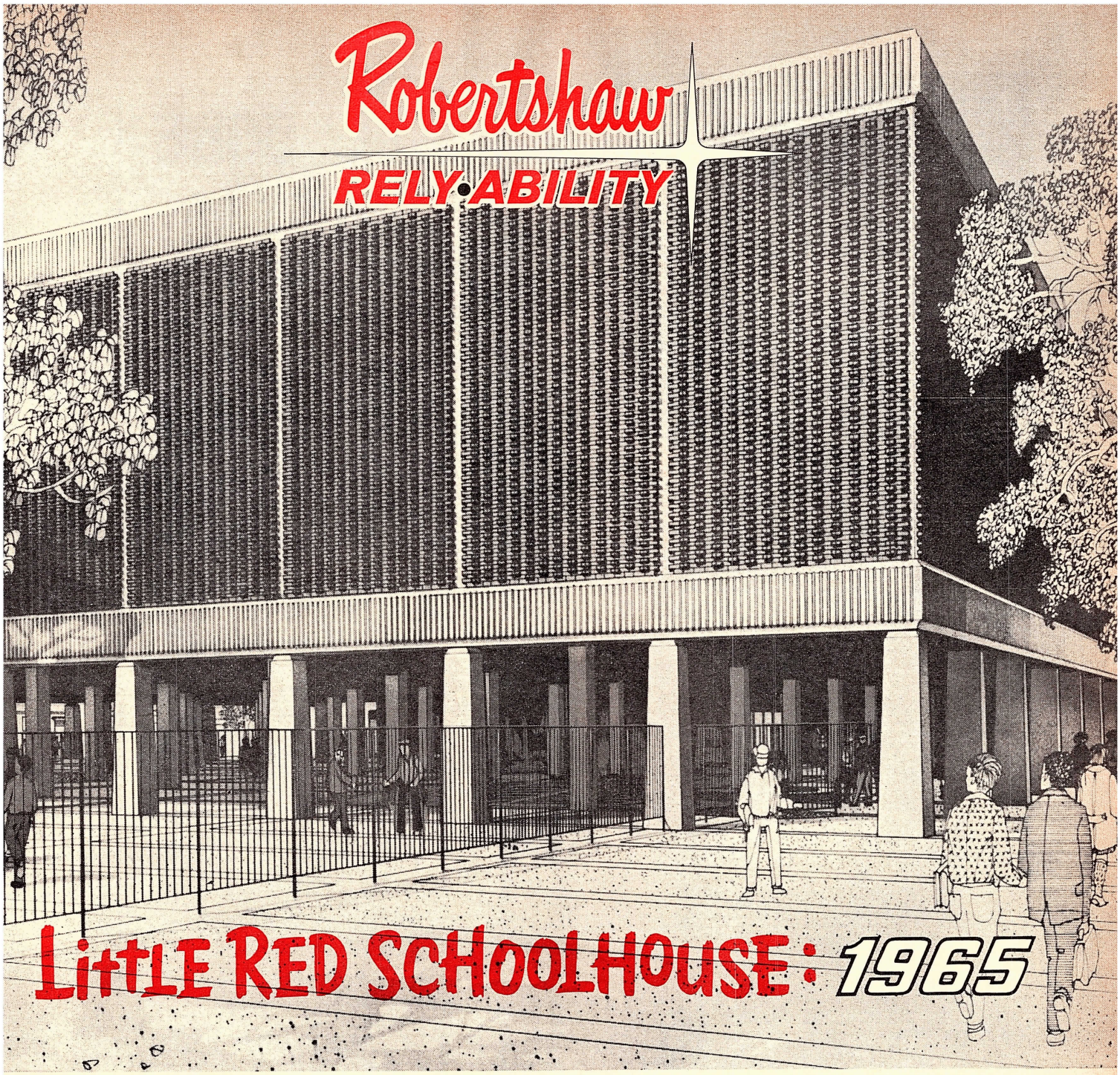
The Hetrofoam-based foam adds rigidity and dimensional stability to the panel and has an insulation value double that of ordinary insulating materials. Its k factor, initially as low as .11 at 75° F, stays remarkably stable. **Won't support combustion.** Fire retardance is inherent in the chemistry of Hetrofoam systems. It adds nothing to the cost. They are rated nonburning on ASTM D-1692-59T.

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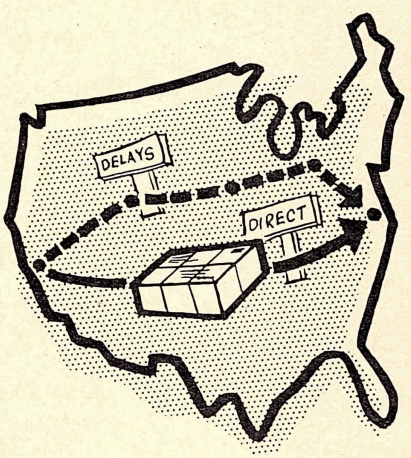
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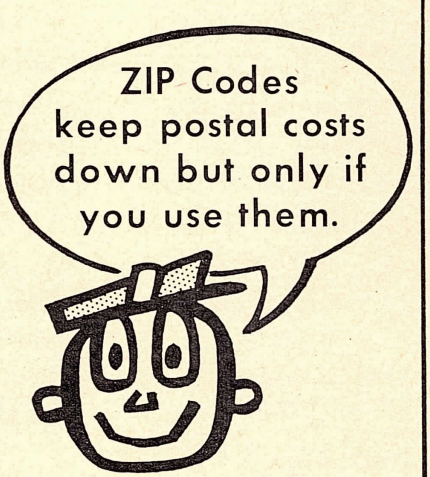
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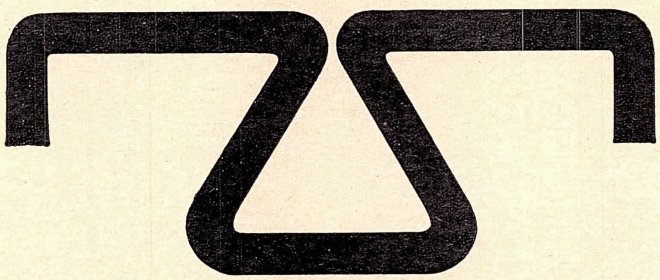


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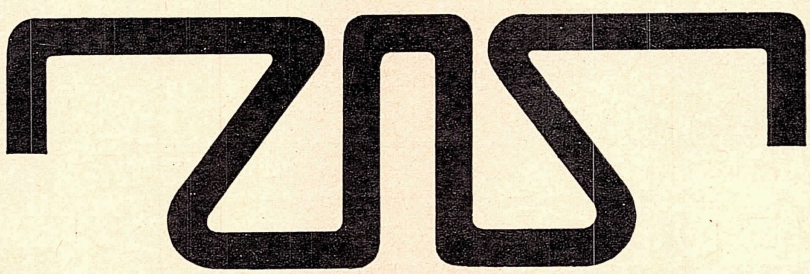


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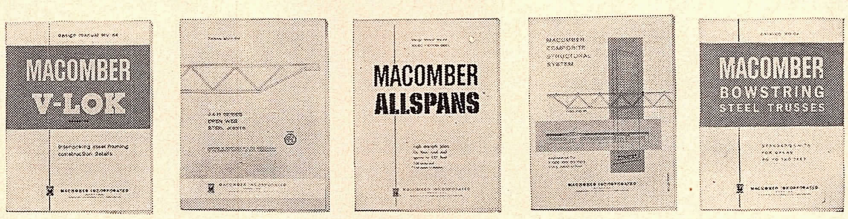
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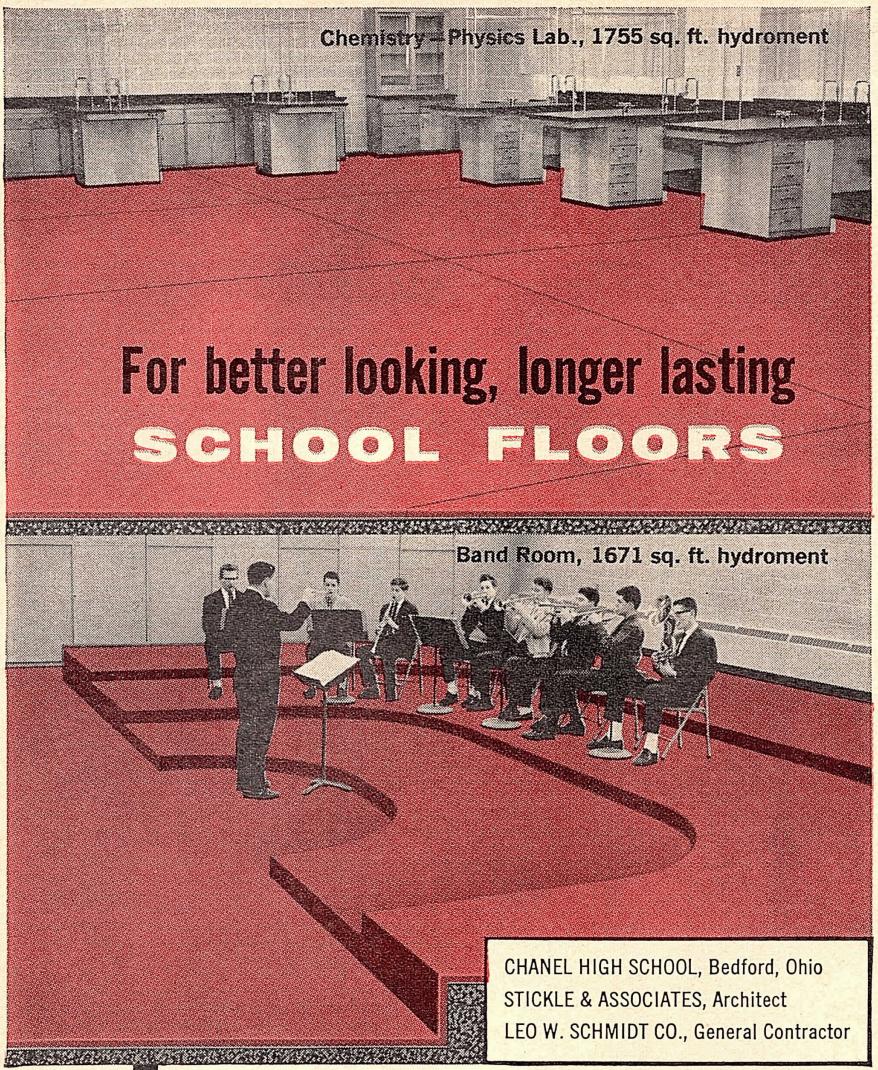
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continued from page 324

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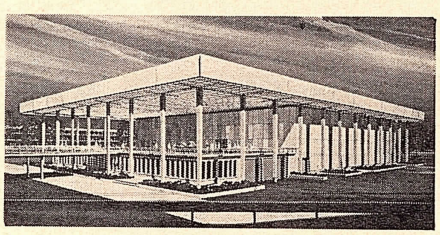
Lamborghini & Pipka, Architects, A.I.A., 105 Whipple St., Providence, R.I. 02908

Metcalf & Metcalf, Consulting Engineers, Merrick Rd. at Grand Ave., Baldwin, L.I., N.Y.

ADDENDA

In the news story on the competition for Parcel 8 in Boston's Government Center (March 1965, pages 12, 13 *et seq.*), the name of Hermann Herrey, coordinating architect, was erroneously omitted from the credits for the entry of the State Street Redevelopers.

Credits for Federal Office Building No. 5 (March 1965, page 144) should have included Weiskopf and Pickworth as Structural Engineers.

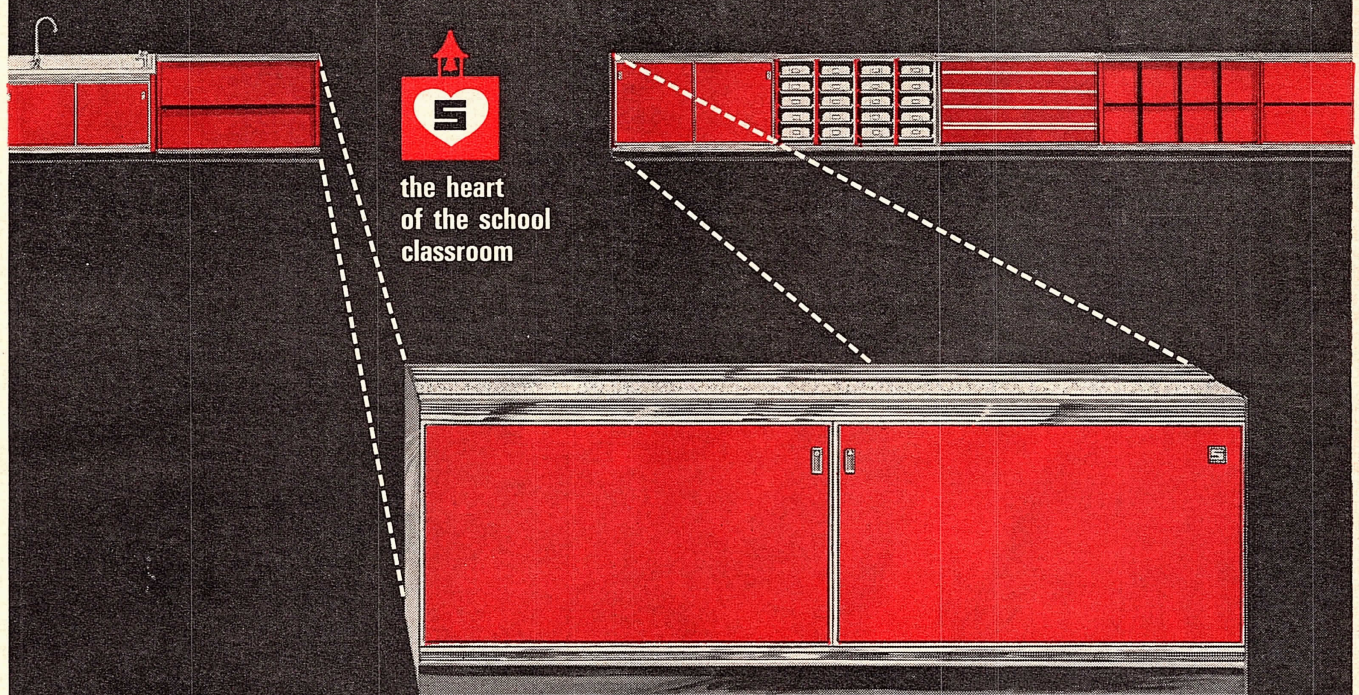


BROADCAST CENTER FOR EXPO '67

Part of a permanent cultural center adjacent to the main entrance of Expo '67, the world's fair to be held in Montreal in 1967, is a $4 million broadcasting center for the Canadian Broadcasting Corporation. Engineer and general contractor for the structure is the Austin Company, Limited, in collaboration with C.B.C.'s engineering staff and Meadowcroft and MacKay, associate architects.

Visitors to the fair will be able to view the operations of the broadcasting center from floating walkways passing the structure. The building has structural steel framing with exposed columns forming a portico. Exterior walls are of white precast concrete panels.

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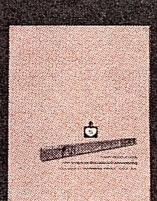
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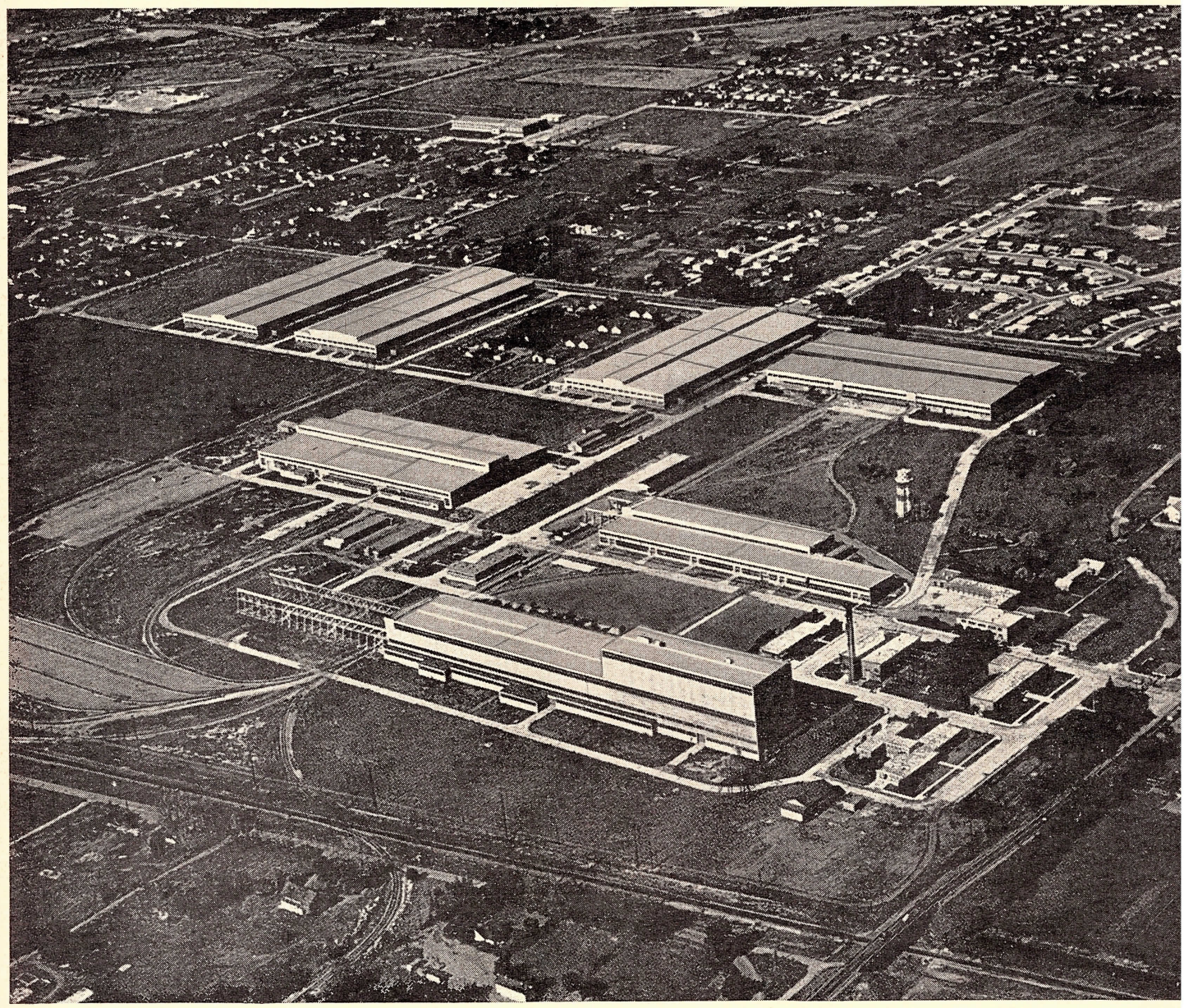
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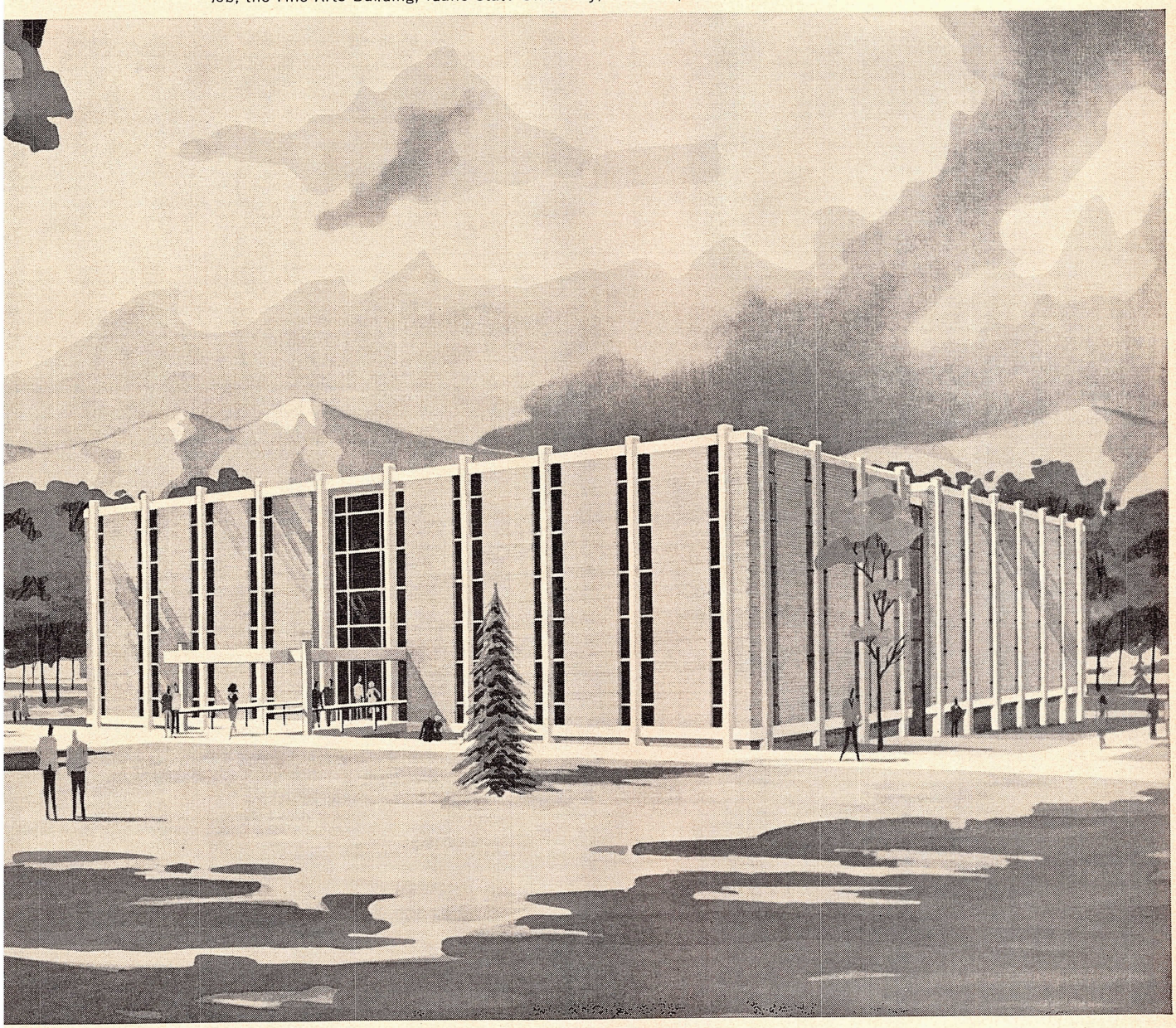
Architect Ray S. Hunter was the job superintendent when the U.S. Navy built this gun relining plant in Pocatello, Idaho during World War II. A Zonolite insulating concrete roof deck was specified. In 1964, some of the built-up roofing was replaced, the Zonolite concrete inspected and declared to be in excellent condition.



This roof deck is so reliable

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Later Architect Hunter joined forces with G. C. Brower from Hunter & Brower, Architects and Engineers. During the course of their practice, they have specified many buildings with Zonolite insulating concrete roof decks. Now that Mr. Hunter has retired, Mr. Brower continues to specify Zonolite insulating concrete roof decks. This is his latest job, the Fine Arts Building, Idaho State University, Pocatello, Idaho.



it becomes a habit

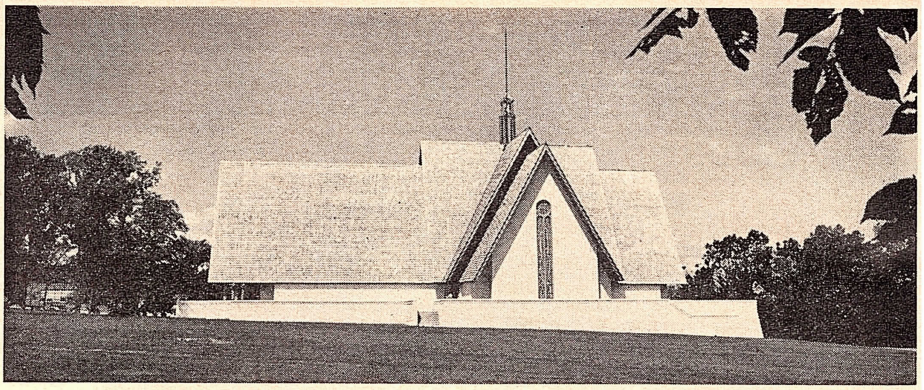
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8. **ECONOMICAL** . . . original cost is low, maintenance costs are nil. Insulation efficiency can easily allow use of smaller heating and cooling units.
9. **CERTIFIED APPLICATION** . . . the approved Zonolite applicator maintains a continuous log of the job; day by day mix proportions, water content, densities and weather conditions. Deck specimens are taken periodically and tested for proper dry density and compressive strength at our labs in Skokie, Illinois.

Other roof deck systems may offer three, four or five of the above advantages, but Zonolite Vermiculite Concrete is the only one that offers all nine. Plus reliability. For complete specifications and data file, have your secretary drop us a note.

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CHAPEL COMPLETED AT KEUKA COLLEGE



The Lucretia Davis Jephson Center for Christian Education and Arthur H. Norton Chapel at Keuka College, Keuka Park, New York, was designed by architect Vincent G. Kling to emphasize the college's dedication to the importance of religion in college life.

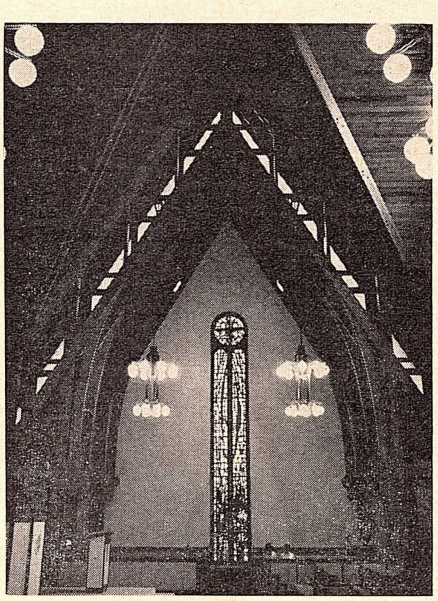
The chapel crowns the campus at its natural focal point, and was designed as a very formal, symmetrical structure on the main axis of the campus.

The chapel is designed in a Latin cross plan, and pews provide seating for 650 in the nave. The structure also contains a 40-student classroom, a combination lounge and seminar room, offices for the chaplain and a professor, and a work room.

The structure is situated on a raised pallet which conforms to the natural contours of the site and provides a concrete paved terrace surrounding the building. The exterior of the building is faced with off-white brick masonry with exposed quartz in the composition. The roof of heavy cedar shingle is 68 feet high.

An unusual design feature of the $640,000 project is the roof over the center crossing which is raised slightly above the plane of the nave and transept roofs to create a clerestory.

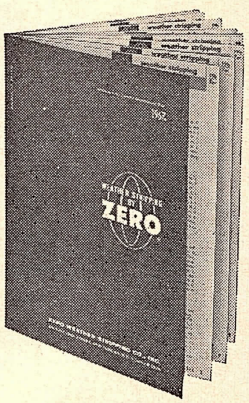
General contractor was the Iversen Construction Corporation. Structural engineers were Allabach and Rennis and the mechanical-electrical engineer was Paul Yeomans.



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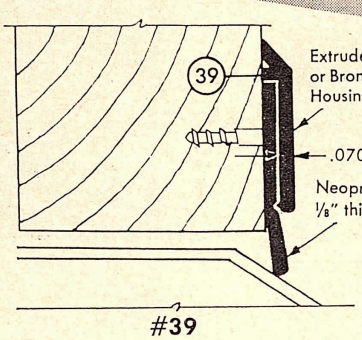


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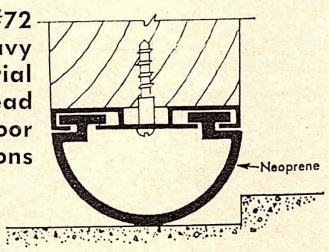


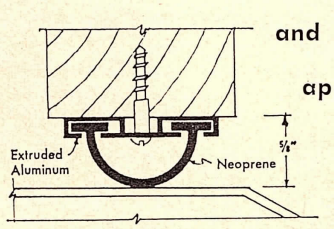
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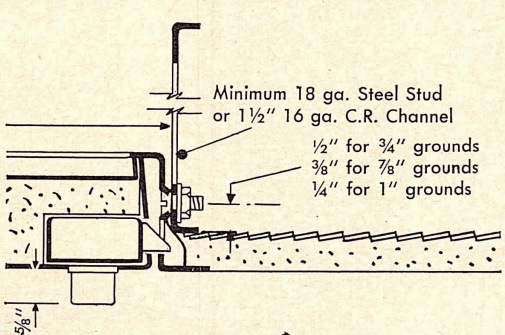
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can you
find
in this
picture?
Answer: We counted 130.

"All air diffusers clutter and intrude."

says who?

The Barber-Colman Heat-of-Light System® uses diffusers that are practically invisible. And, they double as heat extractors to capture heat generated by lights and put it to work heating your building. Result: You realize major savings in the cost of air conditioning. Clip coupon for more facts.

"All air diffusers clutter and intrude." Says who? Instead of imposing design problems, Barber-Colman's Heat-of-Light System reduces the restrictions on architectural and engineering creativity.

With this system, you are now free to design building interiors for greatest aesthetic appeal and personal comfort —uncluttered ceilings . . . off-the-wall thermostat locations . . . movable walls wherever needed . . . zone comfort control for *every* occupied area, if desired.

"Invisible" air outlets add new beauty

Air diffusers used with Heat-of-Light Systems are practically invisible. The new Day-Brite/Barber-Colman combination air/light diffuser is a prime example:

It blends beautifully with any modern ceiling system. And, its beauty is more than skin deep. It lights . . . diffuses air . . . returns air . . . extracts heat . . . and it's an air exchanger.

What's more, it enables you to move the room thermostat off the wall and mount it where it works best—in a moving air stream. (New pencil-thin Barber-Colman electronic sensing elements fit *inside* air/light diffusers . . . detect changes in room temperature up to 15 times faster than wall-mounted thermostats.)

System harnesses light-generated heat

Because the Heat-of-Light System utilizes heat transfer light fixtures, it captures up to 85% of light-generated heat, keeping it out of the occupied space. (Heat from lights can account for 50% of the total heat gains in a building.) Barber-Colman Jetronic mixing units in the ceiling cavity put much of this heat to work maintaining comfort conditions in interior areas. The rest is available to offset heat losses at the building perimeter or for storage (to be used later during unoccupied hours). Result: You realize major savings in the cost of air conditioning (often eliminating the need for boilers and other fuel-fired heat sources).

Simple design provides major savings in system cost

With Barber-Colman Heat-of-Light Systems, hot air ducts, reheat coils, and piping are eliminated. Less pipe and duct insulation are required. You get the most possible air conditioning in the least possible space. Fluorescent lights operate at ideal temperatures (75 to 80°F), increasing light output 15 to 20% over "static" fixtures. Lighting levels can be doubled without increasing conditioned air load.

Free computer service evaluates Heat-of-Light for your building

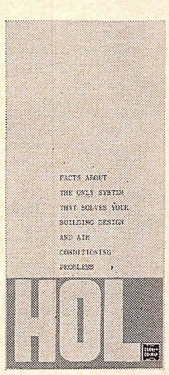
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Get the facts! Clip the coupon below or contact your nearest Barber-Colman field office for a Feasibility Study. (More than 100 of our customers and prospects have already studied their building designs with the help of this Electronic Data Processing Service.) *And it's free!*

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Architects

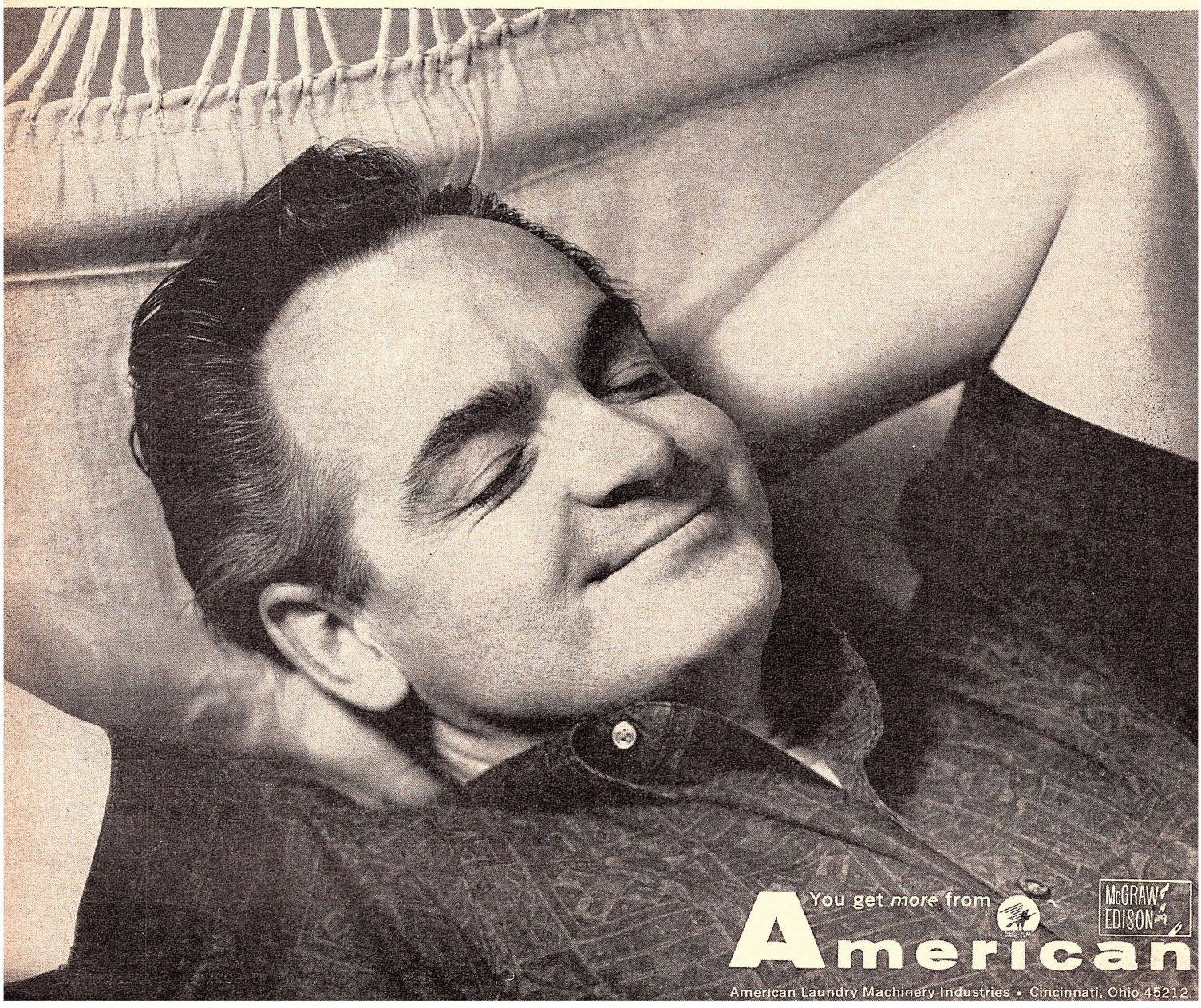
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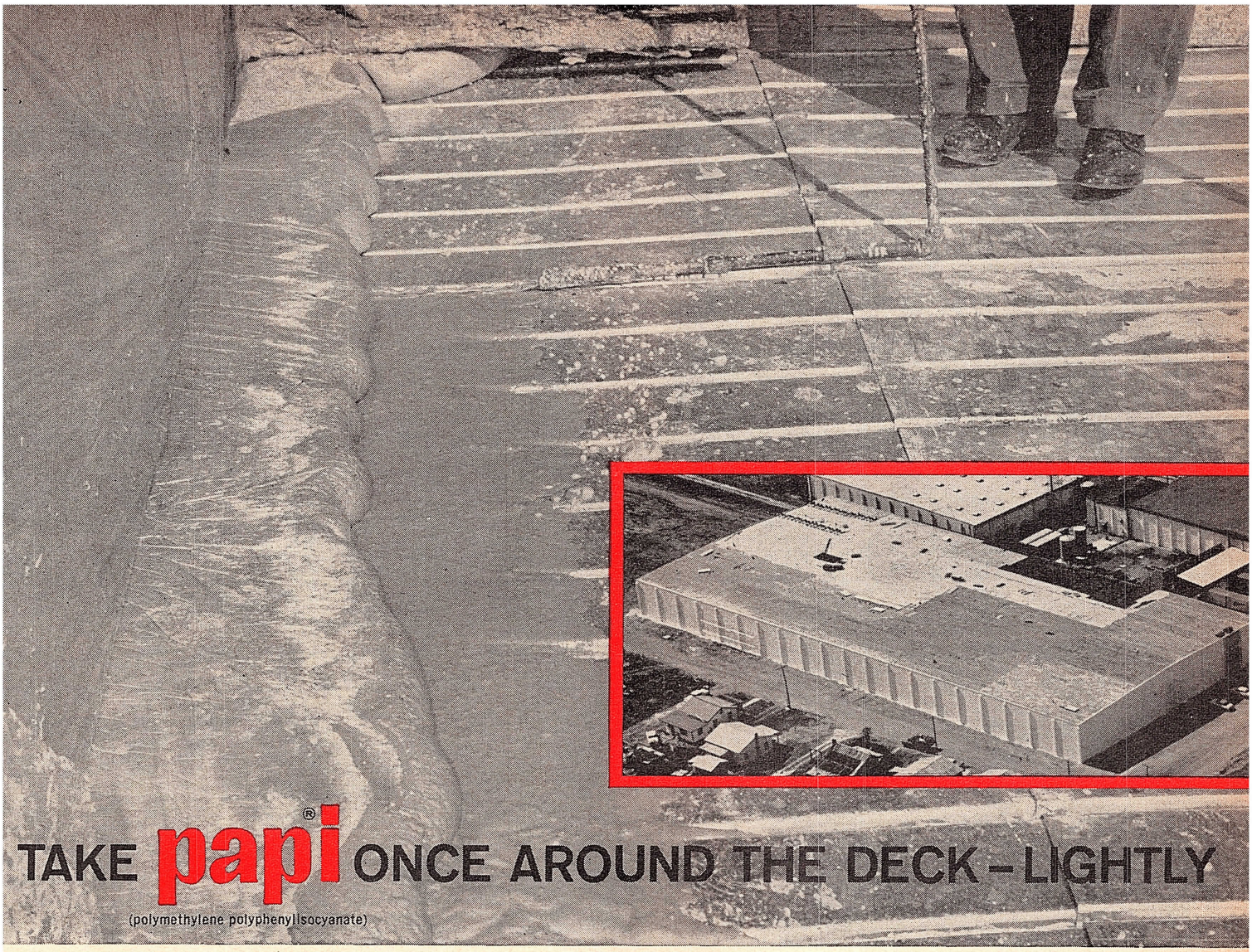
And that's *exactly* what we mean. You can literally forget about it—because we'll take it from there.

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Architects we have worked with find our laundry planning assistance invaluable. Wouldn't you? (A list of these firms is available upon request.) Check our catalog in Sweet's Architectural File, section 26g. Our offices and representatives are listed conveniently in the Yellow Pages—call American today!





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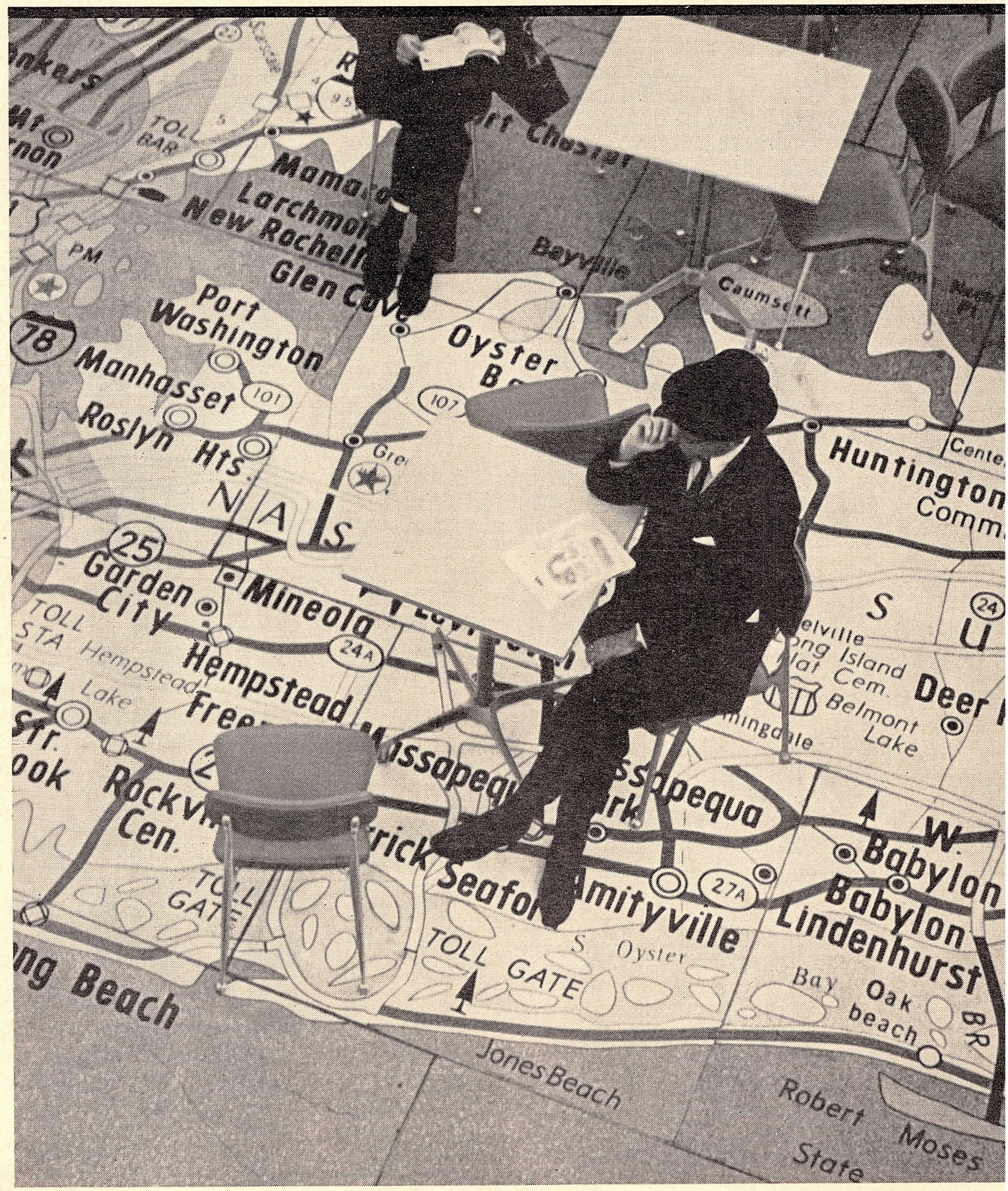
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No. 17 / TERRAZZO



In the floor of the New York State Pavilion at the New York World's Fair, multi-colored terrazzo ingeniously traces the outlines of the m highways across the state. Architect: Philip Johnson Associates, New York. Terrazzo Contractor: Port Morris Tile & Terrazzo Corp., New Y

FLOORS

Clip for a.i.a. file 4-a

Prepared as an industry service by Portland Cement Association

Few flooring materials have the history of terrazzo. Few can combine the beauty and longevity of this versatile material. Floors "designed for kings" in Rome and the original, beautiful floors laid by Venetian workers centuries ago still serve as dramatic tests of time and use. Their performance offers today's architects, and today's owners, unparalleled proof of ultimate economy.

TYPES OF TERRAZZO TOPPINGS

Standard: Minimum thickness (finished) of ⅝ inch, composed of marble chip sizes #1 and #2.

Venetian: Minimum thickness of one (1) inch, composed of chip sizes #1 through #8 (as desired). Uses minimum 1½-inch-deep divider strips.

Rustic: (Washed Terrazzo) Same as any terrazzo topping except that after the rolling operation, it is broom finished or hosed with water. After curing, treat with a solution of muriatic acid and apply a penetrating seal.

Berliner: (Palladiana) Minimum thickness of one (1) inch, composed of broken marble in various sizes from 4 to 140 square inches, with a "Standard Terrazzo" joint, varying in width from ½ inch to 5 inches.

Conductive: Same as "Standard" except that acetylene black is added to the topping and underbed and mixed in strict accordance with special specification for Conductive Terrazzo. Meets all National Fire Prevention Assn. requirements.

TERRAZZO COMPONENTS

Marble: Shall be standard quarry products.

Marble chip sizes: Marble chips are graded by number according to size and in conformity with industry standards adopted by marble producers, as follows:

Chip Size Number	Passes Through Screen Inches	Retained on Screen Inches
0	⅛	1/16
1	¼	⅛
2	⅜	¼
3	½	⅜
4	⅝	½
5	¾	⅝
6	⅞	¾
7	1	⅞
8	1⅛	1

For Venetian Terrazzo the larger chips should be used in the following groups:

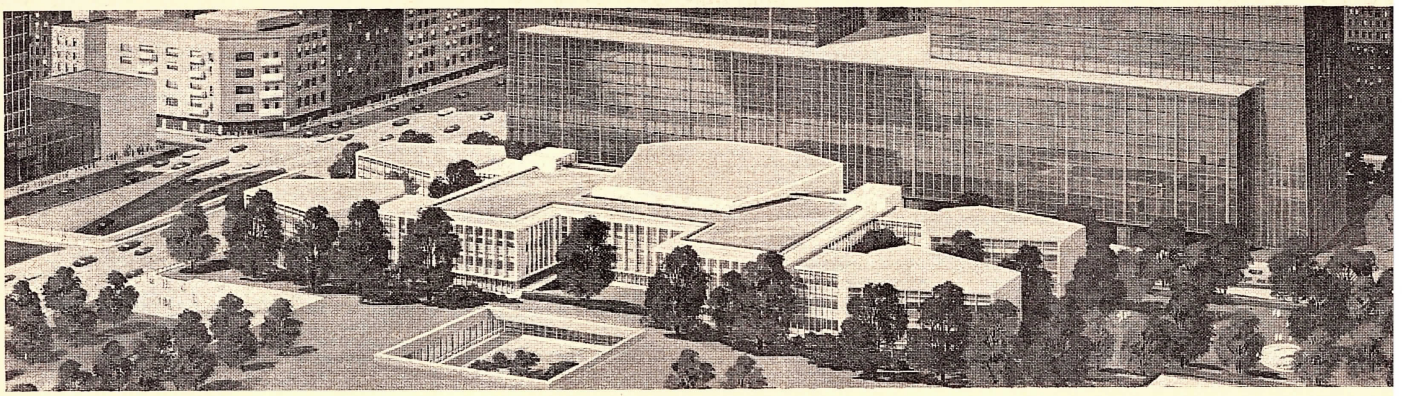
#4 plus #5	¾	½
#6, #7 plus #8	1⅛	¾

Chips should be crushed uniformly so that all dimensions are reasonably close to the limits of the recommended sizes. Flats or flaky chips should be held to a minimum.

Portland cement: White portland cement and gray portland cement shall conform to "Specifications for Portland Cement" (ASTM C 150-63) or "Specifications for Air-Entraining Portland Cement" (ASTM C 175) or "Cement, Portland" (FS SS C192g).

Portland Cement Association
33 West Grand Avenue, Chicago, Illinois 60610

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NEW BUILDING PROPOSED FOR U.N. SCHOOL

A $7 million structure to house the United Nations International School has been proposed for a 340-foot-wide by 180-foot-deep site at the northern extremity of the United Nations premises in New York City. The structure was designed by the architectural firm of Harrison and Abramovitz.

The basic design concept for the school, which would serve 1,000 pupils, is a system of four pavilions to provide classrooms for pupils of separate age groups. The pavilions would be linked to a main building which would contain such common facilities as auditorium, library, science laboratories, administration offices, art center, student center, and recreational facilities. The design would permit flexibility of arrangement within classroom pavilions.

Major design objectives were relating the building to present United Nations structures as well as separating school and United Nations traffic and activities. When completed, the school would have a maximum height of three stories, and on the side facing the U.N. complex, a height of two and one half stories. Its stone facing would be similar to that of other U.N. structures.

The Ford Foundation has offered to make a grant of up to $7.5 million to cover the cost of building and equipping the new school, and the United Nations has undertaken a $5 million fund-raising campaign to make the school self-supporting.

In another proposal, a 17-acre park site on the tip of Welfare Island, in the East River off Manhattan Island was offered as an alternate location

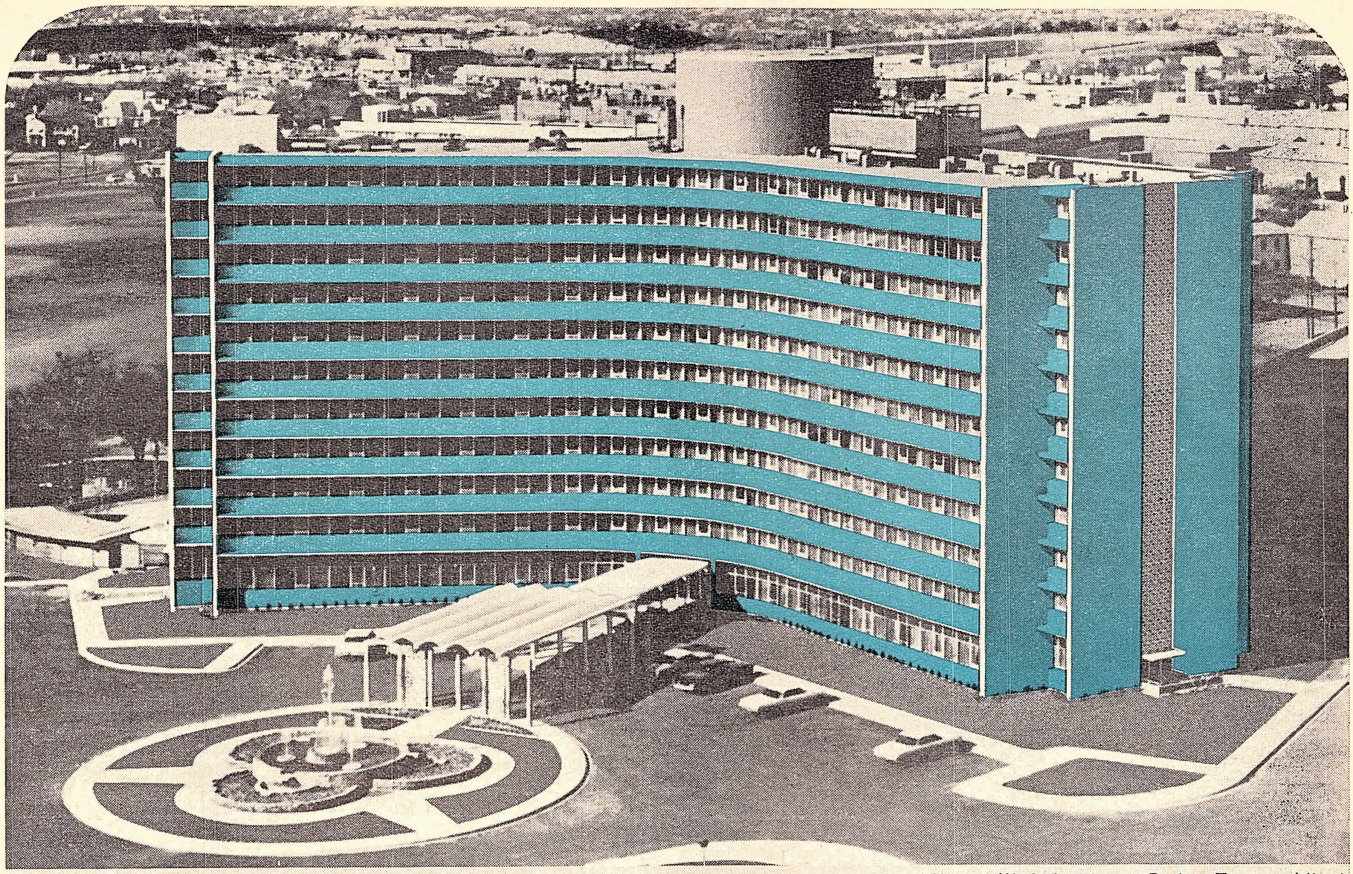


Photo courtesy of Reality Associates Ltd. Walter W. Ahlschlager, Dallas, Tex., architect

11-STORY OVERCOAT

Looks like ceramic,
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An Aroflint-based coating system opens up intriguing possibilities for other exterior applications. It can be applied equally well over masonry, wood or metal . . . it comes in gleaming white or bright pastels that won't fade or yellow or in clear finishes to accent a distinctive exterior. Like paint, it can be applied by brush, spray or roller.

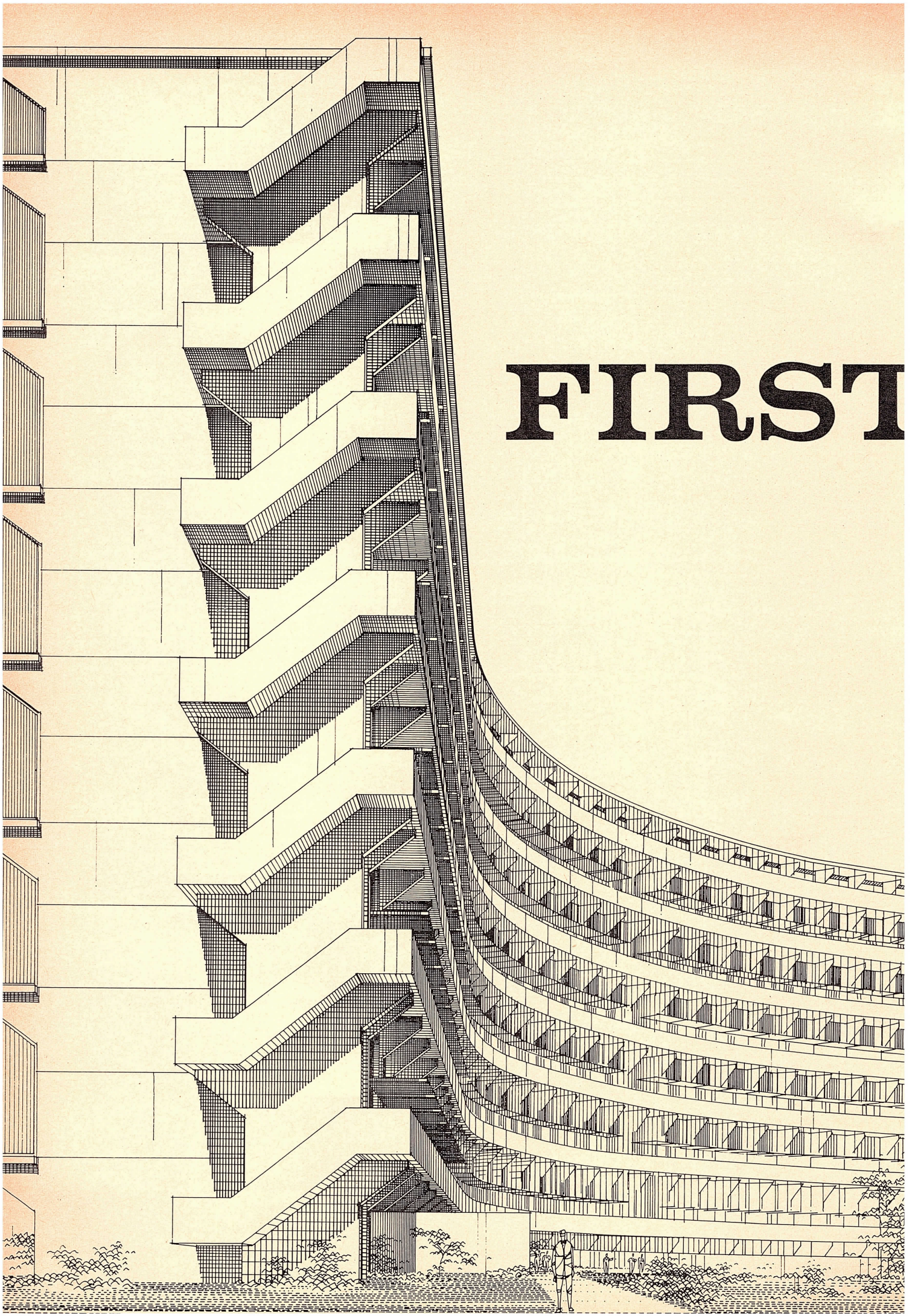
Consider and evaluate the advantages of an Aroflint-based coating system for your upcoming projects. Write for full particulars.

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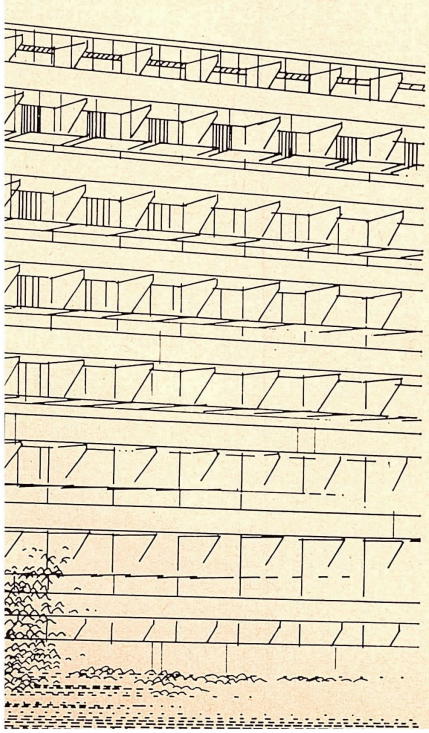
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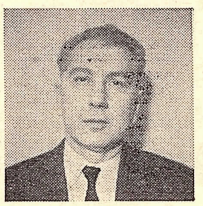


El Monte Apartments, Hato Rey, San Juan, Puerto Rico.
Architects: Edward Larrabee Barnes and Reed, Basora & Menendez.
Drawing by Davis Bité

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HOW TO STOP WATER PENETRATION YET LET MASONRY "BREATHE"

By Joe Lifland, Technical Group Leader
Sonneborn Building Products, Inc.



Water penetration can shorten the life of masonry and concrete structures. Wet freeze-thaw conditions cause masonry to deteriorate; mortar to crumble. Water soluble salts leach out, causing unsightly efflorescence. Moisture may even penetrate inside walls, causing failure of plaster and paint.

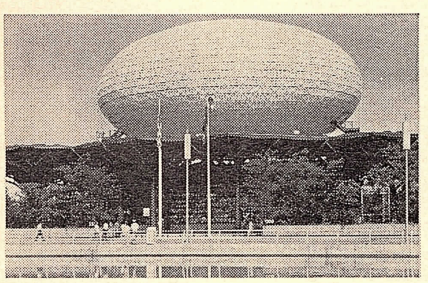
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Super Colorcoat for Damp or "Green" Surfaces

Unlike Colorcoat, which is used only on dry, cured surfaces, Super Colorcoat goes on easily over "green" or slightly damp surfaces. Compounded on an acrylic emulsion base, Super Colorcoat contains low chalking pigments and ultra-violet light absorbers that assure long life and color stability. In nine colors and white.



15-Year History Proves Durability

The IBM Building at the New York World's Fair is a recent project protected by Hydrocide Colorcoat. During the past 15 years almost all of the nation's top 500 companies have used either Colorcoat or Super Colorcoat in some phase of construction. For further information check the Yellow Pages, Sweet's Architectural File (9/So), or clip the coupon.

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Please send me complete technical information on Hydrocide Colorcoat and other Sonneborn Building Products.

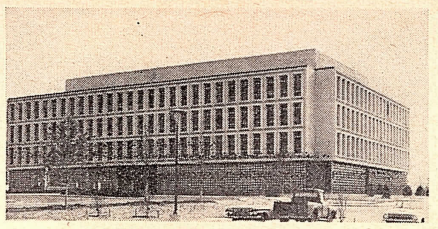
Name_____ Title_____

Company_____

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CHEMICAL SERVICE HEADQUARTERS

A $7 million headquarters for the American Chemical Society's Chemical Abstracts Service adjacent to the Ohio State University campus in Columbus, Ohio, was recently completed. Architects for the building were Potter, Tyler, Martin & Roth and the general contractor was Garwick and Ross, Inc.

The white precast concrete building has a gold and blue terra cotta latticework running around the first floor setback. In a 50-acre tract, the building contains 190,000 square feet of floor space.

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Tomorrow, scientists may discover the cause of leukemia. But today we need your help.

The American Cancer Society is devoting more research money to leukemia than to any other form of cancer. Many different possibilities are being explored—viruses, anticancer drugs, early diagnosis, immunology, bone marrow transplantation.

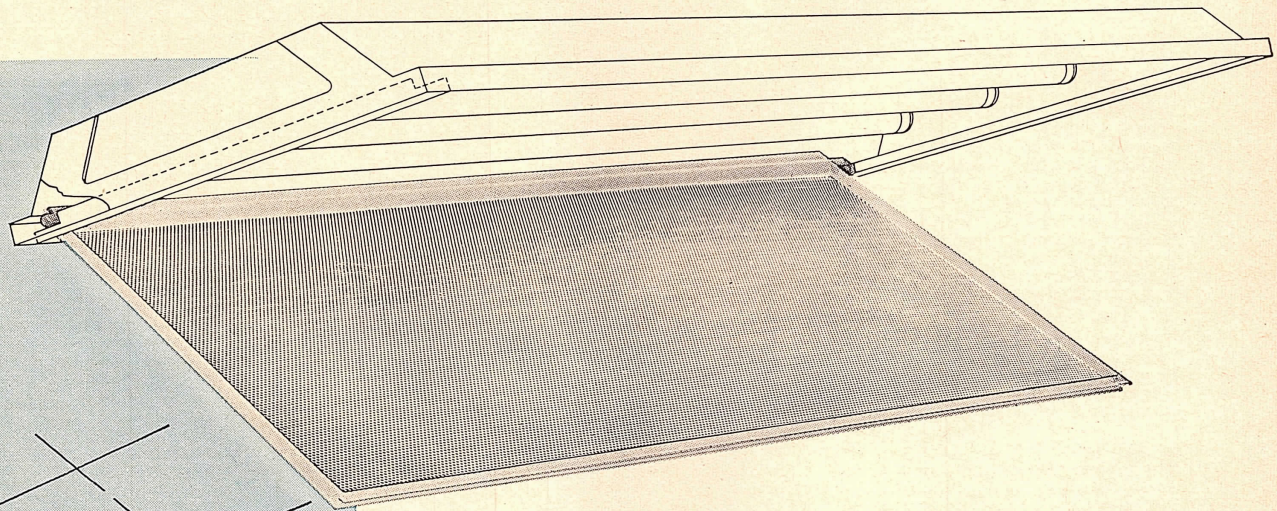
Progress is being made. Lives are prolonged by many months, sometimes by years, with drugs and other therapy. The course of leukemia has been slowed and even temporarily halted by chemicals and blood transfusions.

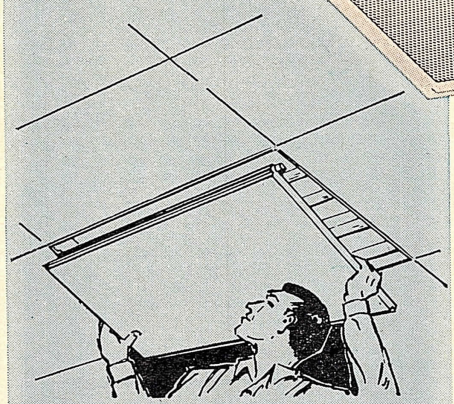
And today there is *hope*. Many research scientists believe that the next major breakthrough may be against leukemia. But much more could and should be done—now. This will take money—lots of money.

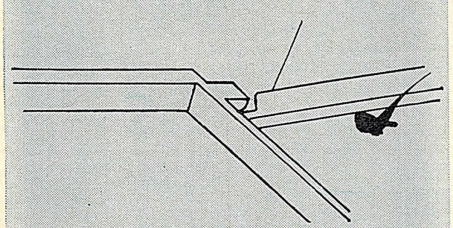
Your dollars will help bring closer the day of victory. Please give generously. Mail your check to CANCER, c/o your local post office.

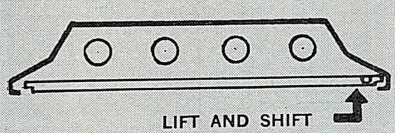
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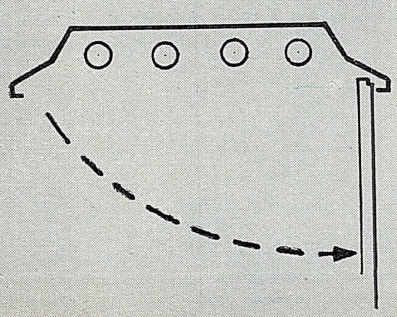
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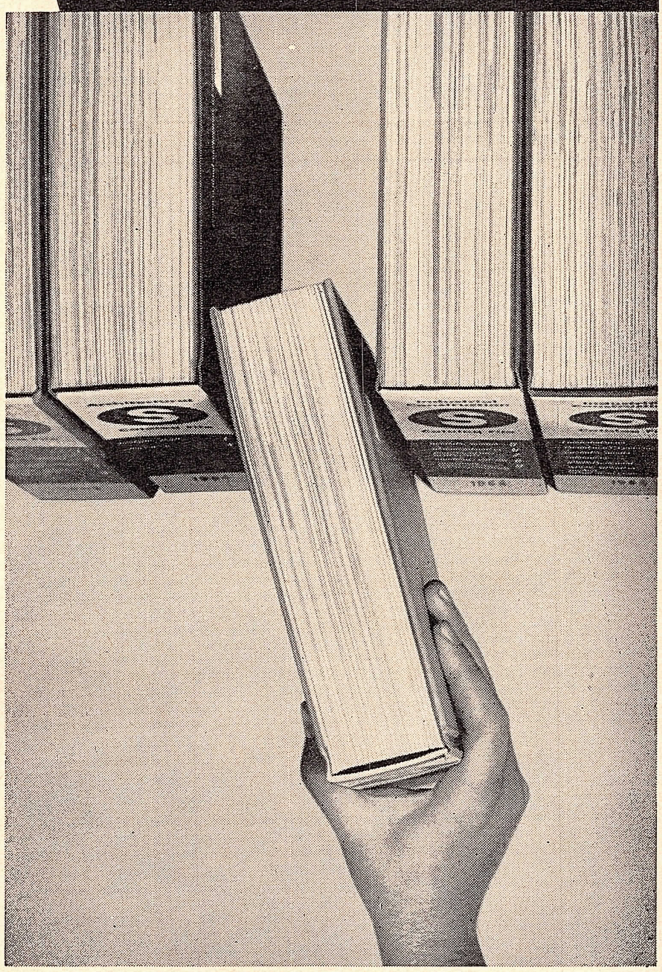
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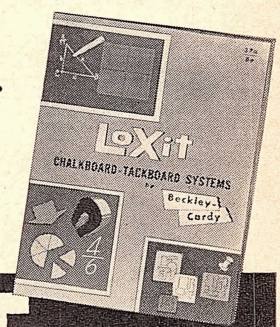
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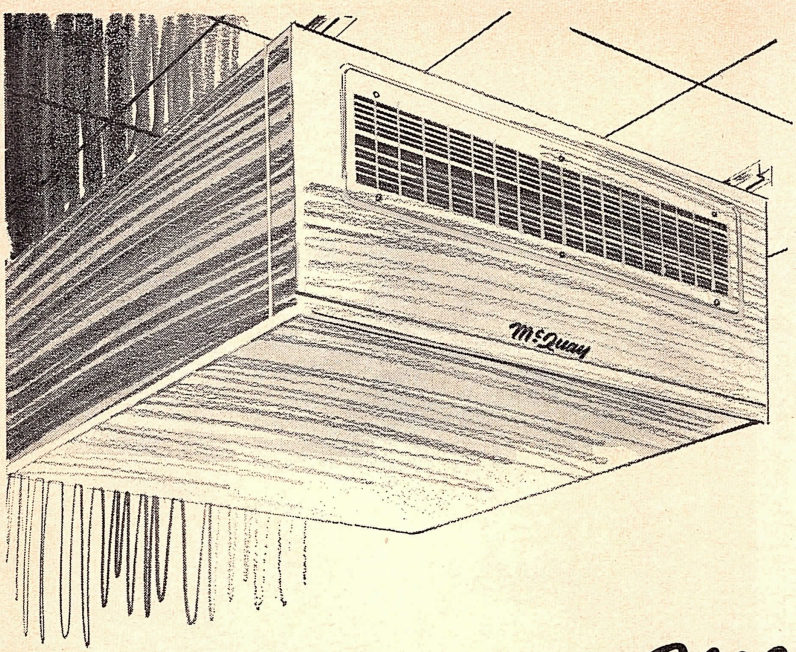
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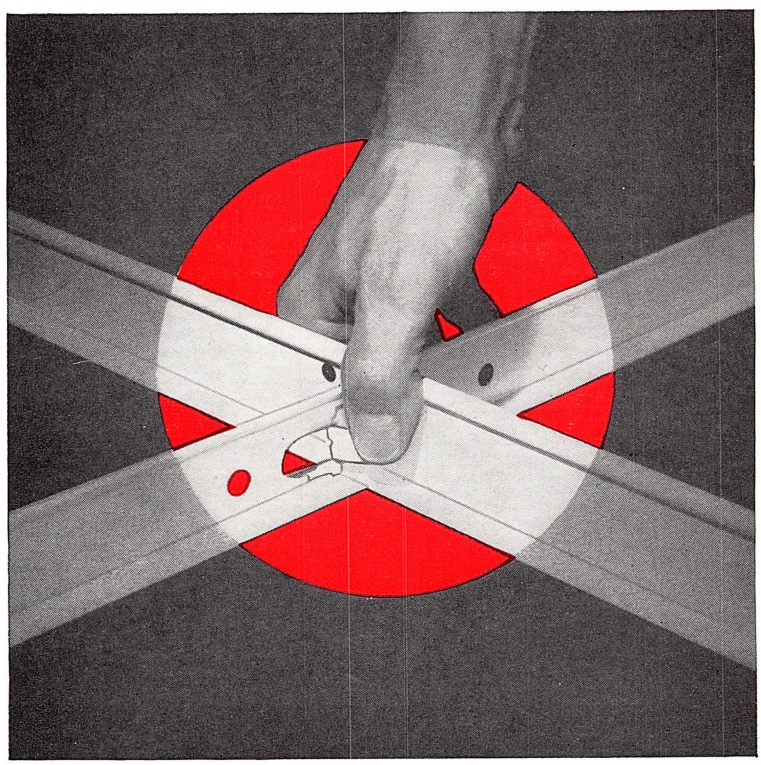
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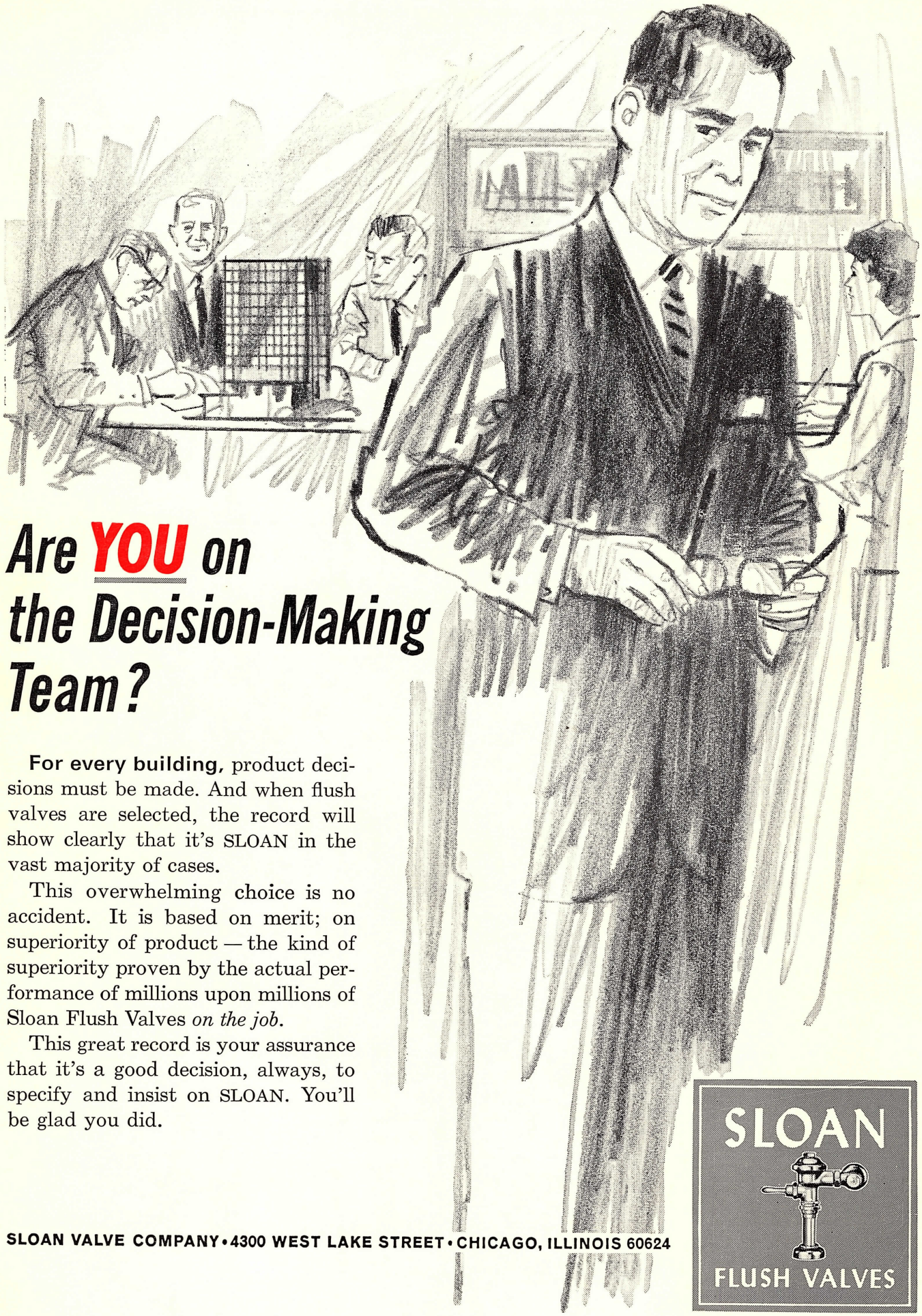
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